THE CULTIVATOR:

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

AGRICULTURAL IMPLEMENTS.

In pursuance of the recommendation of the State Agricultural Society, the subscribers, a committee appointed for the purpose, will meet at the City Hotel in Albany, *on the second Tuesday in July next*, at 10 o'clock A. M. to examine and test any agricultural implements which may be offered for their inspection; and to certify to the merits of such as they may find deserving of public patronage. Inventors and venders of new implements and machinery are invited to attend, and previously to notify the secretary, J. K. Paige, Esq. of the implements they intend to exhibit, by letter, post paid. June 1, 1837.

A. VAN BERGEN, JOEL A. NOTT,
H. BURDEN, JESSE BUEL,
J. P. BEEKMAN.

☞ Publishers of newspapers will render a public benefit by giving a gratuitous insertion to the above notice.

THE TIMES! THE TIMES!!

Are truly distressing, and call for all our fortitude, forbearance and sympathy: fortitude to support us in our own trials; forbearance towards those whom misfortune has placed in our power; and sympathy for the general distress. Although bad—very bad—the times may be worse before they are better. The merchant has felt the first shock, the manufacturer is staggering under the blow, and the mechanic, the farmer and the laborer, are neither of them to escape unhurt. Yet, amid the wreck of fortunes and the consequent distress, there are many individuals, in all classes of society, who have cause to felicitate themselves on their forethought and prudence, in leaving *well enough* alone, without having hazarded their all to *do better*. Yes, prudent industry has ample cause of felicitation; and in no class is this exemption from dire calamity likely more to abound, than among the farmers of the middle and northern states. While the precocious plant, that, like Jonah's gourd, grew up in a night, is blasted by the storm of adversity, the more humble oak of the farm, whose growth has been slow but sure, will remain firmly rooted in its native soil, in despite of the whirlwind, with but perhaps a partial loss of limbs and foliage.

How far the measures of the government have contributed to the present distress, or how far it is in the power of the administration to afford relief, by the revocation of the specie circular or other means, are questions which it is not our province or intention here to discuss. Yet there are causes, not political, which we may with propriety canvass, and which have had considerable influence in producing the present unexampled commercial embarrassments. It is the province of philosophy, as well as of christianity, to profit by past errors, and, like the bee, to extract honey from the noisome weed. Adversity is a better teacher of wisdom, often, than prosperity, while it is the only school in which many can be induced to learn.

One cause of existing evils, has been a prevalent impatience to get rich faster than one's neighbor, and to live more ostentatiously and extravagantly—as if our happiness, the great object of pursuit, depended more upon reputed wealth and lavish expenditure, than upon a snug competence and a disposition to enjoy it rationally, in the temperate indulgence of our appetites, and the faithful discharge of our duties. The dull, plodding pursuits of labor did not promise soon enough to realize, to many, their golden dreams. Commercial and other hazardous speculations were gone into, and their success was heralded upon the four winds. New adventurers started; property acquired a fictitious value; the unreasonable multiplication of banks and chartered companies opened new facilities of credit, and new fields of speculation; and the belief daily gained ground, that the ruling passion might be soon gratified to an indefinite extent.

The consequence has been, that too many sought to get fortunes by their wits—by speculation—and too few to earn them by their labor. The professions were overstocked—commerce was pushed to an extreme point—the imports in a single year exceeding the exports sixty-four millions of dollars—our citizens became greatly in debt, at home and abroad, and speculation was rife in every quarter of the country, and in every description of property. The shopman, aspiring to the condition of the wholesale merchant, quit the station where his capital and his qualifications fitted him to be useful. Mechanics and farmers, in countless numbers, deeming the employments in which they had prospered too humble for their ambition, and lured on by the successful example of others, either themselves quit their business for more lucrative or fashionable employments, or raised their sons to the *dignity* of the learned or mercantile professions. In this way, multitudes were transferred from the producing to the consuming classes. The latter consequently increased beyond their due bounds, and the former were correspondingly diminished. Extravagance kept pace with the fancied accumulation of wealth; agriculture, the great business of our country, and the main source of our wealth, was greatly curtailed in its products; provisions doubled in price, and the importations of foreign grain became necessarily extensive; until at length settling day has come, and thousands are reduced to bankruptcy, who believed themselves secure in opulence, either by their own indiscretions, or the indiscretions of others. General distrust has taken the place of general credit; commerce is in a manner paralyzed, manufacturers are suspending their operations, and discharging their workmen; the mechanic is curtailing his business; and many thousands are thrown out of employment, who depend on their labor for bread; and property of all kinds is depreciating to its minimum value.

We are not among the number who believe, that an increase of banks in such a crisis would afford relief. To multiply them now, would be like administering opium to a patient whose frame had been wasted, and his health destroyed, by the habitual use of the drug. It might mitigate pain, but it would never restore sound health. We are sick—the disease is seated, and will run its natural course; and when the crisis has passed, the patient will regain his strength and vigor, if he is not dredged with quack nostrums. All that can be done safely, is to make him as comfortable as possible; to watch and profit by the first symptoms of convalescence, and to guard against a relapse.

And what are the lessons which the times teach us? What the means of restoring sound health and vigor to the body politic? We will enumerate some which fall within the particular province of our journal.

And in the first place, and as of the first importance,

We must enlighten, and specially patronize agriculture, by schools of practical and scientific instruction, and by pecuniary bounties—that it may be rendered more productive, more inviting, and more honored. We must wed the hands to labor, and the head to knowledge. Those who have forsaken rural labors, and been disappointed in their utopian dreams of riches and happiness, should return, with the humility of the prodigal son, to a forgiving parent. They will be kindly received, and amply remunerated, on resuming their former duties. Thus we may save to the country the millions which were last year sent abroad, or for which we are still in debt, for foreign bread-stuffs, and bring down the price of provisions to a fair medium standard.

We must protect our manufacturers. Although they have in some cases acted unwisely, and illiberally towards the farmer, and have, in the plenitude of temporary power, forgot right, still they are likely to be sufficiently chastened by present adversity. Their well-being is identified with the prosperity and independence of the country. They work up much of the cotton of the south, the wool of the north, and consume the surplus provisions of all the states. They transform the metals of our mountains into the necessaries of civilized life. They make up the bulk of our domestic commerce. They give employment to millions of worthy citizens, and virtually clothe the nation. They are our brethren, possess with us a common interest in the welfare of our country, and we must rise or fall with them. And we are inclined to think, that resolutions of public meetings of our citizens, to give a preference, to every reasonable extent, to domestic over foreign fabrics, would be alike prudent and patriotic. Many millions of dollars have been embarked in these branches of labor, which must be lost to our country if our manufactories are suffered to go down, to say nothing of the abject dependance their loss will bring us under upon foreign nations, for many of the absolute necessaries of life.

We must live more within our means, and upon our means, and become examples of prudence and economy to our less opulent neighbors. This remark is particularly intended for our cities and villages. Example in the higher orders is contagious, be it good or evil; and those who squander with princely extravagance, inflict the direst evils upon commu-

nity. They mistake alike their own true dignity and happiness, the spirit of our institutions, and the interests of the country. Our expenses of living have in too many instances been quadrupled during the last thirty years—not for the necessaries and comforts, but for the superfluities and baneful luxuries of life.

We must forego personal animosity, and discard local jealousies and political intolerance. The nation is one family. Whatever directly benefits one class or one district, indirectly benefits the whole; and whatever directly distresses one class or one district, indirectly inflicts injury upon all. The exceptions to this general rule are partial and limited, and are not sufficiently cogent to deter the philanthropist and the patriot from studying to promote, with steady aim, the prosperity of the greatest number. The terms misanthropic, miserly, narrow-minded and selfish, convey reproach, and are classed by moralists among the vices of humanity. Let us endeavor to avoid the odium which they inflict, by practising the virtues to which they are opposed, and which inculcate good will towards each other, and a strenuous and united effort to promote the prosperity and happiness of our country—of our *whole* country.

THE NEW-YORK LEGISLATURE

Adjourned on the 16th ult. after one of the longest session ever held in the state, and without, we believe we speak by general consent, having rendered a corresponding benefit to the public. They did not incorporate any new banks, nor, like the legislatures of some sister states, charter companies to cultivate the beet and plant the mulberry. All this was probably well—for it is now pretty generally admitted, that we have too much of a good thing, if banks may be called such—that we have been so abundantly stimulated with them, as to bring on what medical men call indirect debility—a sort of delirium tremens; and in regard to beets and mulberries, our statesmen very properly judged, that these concerns would be best managed by individual enterprise and industry, like the culture of ruta baga and the planting of orchards. But it has been unfortunate for the state, and we think for the gentlemen themselves, that our wise men had unwittingly, in a spirit of political chivalry, prematurely declared a war of extermination against small bank bills; and that they felt themselves bound by a false and ruinous principle of honor, to persist in their Quixotic course, when the utter impracticability of success became apparent to all, even, we believe, to themselves. The consequence of their refusing to permit the small bills of our banks to have circulation, will be virtually to substitute the small bills of foreign banks in their stead, as a medium of exchange. The banks of other states, in whose stability we have less confidence than in our own, are already filling up the void—and our citizens, driven to the wall—will and must receive and circulate this foreign paper, in despite of the penalty of our laws, which no one is disposed to put in force against offenders. An eastern pedlar brought to New-York, the other day, $3,000 in one dollar foreign bills, and sold out the whole in a few hours, at a premium of three per cent. Our steam-boats are compelled, or at least some of them do it, to obtain from abroad small bills for change, and new plates are now preparing for foreign banks, for extensive emissions of small bills to serve as a circulating medium in the "Empire State!" Laws, to be respected, should effect a palpable public good; but few, very few, have been able to discover the public good which is likely to result from prohibiting the circulation of small bills.—The provisions of the law have at no time been enforced; and now, we venture to say, cannot be enforced. Is it politic, under these circumstances, to continue it in operation, and thereby weaken the attachment which every good citizen has to law and order?

Winter products of a Devon Cow.—At our request, Abm. P. Holdrich, Esq. of Spencertown, had an accurate memorandum kept of the butter made from a Devonshire cow, which calved late in autumn. The result was, that from the 19th December to the 18th of January, including both days, there was made from her milk fifty-six pounds of well worked butter, nearly equal to two pounds per day. The cow was fed with roots, hay, and buckwheat bran. Estimating it at 20 cents per lb., the butter made during the month, and in the depth of winter, was worth $11.20; and if we consider this the average product of eight months in the year, the aggregate amount for that period would be $89.60. We need no better illustration than this, of the importance of keeping good animals, and of keeping them well.

The Tomato.—We are receiving new evidence of the utility of this grateful garden vegetable in preserving health, and in curing indigestion, and diseases of the liver and lungs. A writer in the Farmer's Register, says it has been tried by several persons, to his knowledge, with decided success. They were afflicted, says he, with chronic cough, the primary cause of which, in one case, was supposed to be diseased liver—in another, diseased lungs. It mitigates, and sometimes effectually checks, a fit of coughing. It was used in a dried state, with a little sugar mixed with it, to render it more agreeable to the taste. The writer expresses a conviction, that if freely used in July, August and September, it would prove a complete antidote to bilious fever. The tomato, to have it in early use, should be started with us in a hot bed; though if raised in abundance it may be dried, which is our practice, and may be at command through the year. The mode of drying is as follows: "Full ripe tomatos are scalded in hot water, to facilitate the operation of taking off the skin; when skinned they are well boiled with a little sugar and salt, but no water, and then spread in cakes about an eighth of an inch thick in the sun. They will dry enough in three or four days to pack away in bags, which should hang in a dry room." We consider the tomato and rhubarb the most healthy products of the garden.

Professor Rafinesque says of the tomato, "It is every where deemed a very healthy vegetable, and an invaluable article for food."

Prof. Dickson writes—"I think it more wholesome than any other acid sauce."

Prof. Dunglinson says—"It may be looked upon as one of the most wholesome and valuable esculents that belong to the vegetable kingdom."

CROPS AND SOILS TO WHICH THEY ARE ADAPTED.

The annexed table, says the writer of British Husbandry, has been given by Von Thaer, as a classification of soils, which we deem entitled to particular attention, as in some degree governing the course of crops; for, although the real value of every rotation depends, in a great measure, upon the manner in which its several processes are executed; yet, abstractly speaking, some courses must be viewed as better than others, because the crops may be more suitable to the peculiar qualities of the land on which they are to be grown. The last column in the table comprises an analysis of the comparative value of the different component parts, and is the result of many years careful examination of the soils, as well as of the proceeds of the crops, after the deduction of labor and seed.

Nos.	SOILS.	Clay per cent.	Sand per cent.	Carb. of lime, per cent.	Humus per cent.	Value.
1	First class of strong wheat soils,	74	10	4½	11½	100
2		81	6	4	8½	93
3		79	20	4	6½	96
4		40	22	36	4	90
5	Rich barley land,	20	67	3	10	78
6	Good wheat land,	58	36	2	4	77
7		56	30	12	2	75
8	Ordinary wheat land,	60	38	Small quantities in each.	2	70
9		48	50		2	65½
10		68	30		2	60
11	Good barley land,	38	60		2	60
12	Ordinary barley land,	33	65		2	50
13		28	70		2	40
14	Oat and rye land,	22½	75		1½	30
15		18½	80		1½	20

It will be perceived, that the wheat soils possess from 40 to 81 per cent of clay, and at least two per cent of carbonate of lime, which latter seems to be an indispensable ingredient in a wheat soil; and that neither barley, oats nor rye, and we may extend the remark to Indian corn and turnips, require carbonate of lime, though this always gives a chemical and mechanical improvement to the soil, by rendering sands more compact, and more retentive of moisture and manure. Those soils in which sand predominates over clay, are best adapted to the growth of Indian corn and ruta baga, though for both they should be artificially enriched by a good coat of manure.

Nos. 1, 2 and 3 are alluvial soils of the richest quality, and embrace much of the land of secondary formation west of the great Allegany range; and from the large portion which they contain of vegetable mould, or humus, and the intimate state of mixture in which it is found, they are not so stiff as the quantity of clay which they contain would seem to indicate. From the absence of carbonate of lime in our primary formations east of the Allegany, many districts, although having the other earthy ingredients and humus, are not congenial to the growth of wheat.

No. 4 is a fine clay loam, such as abounds in many parts of this state, and is termed our best barley soil; and, although what may be termed strong land, is yet of a texture which renders it easy to be worked; it is consequently evidently suitable to the alternate system of husbandry.

Nos. 6 and 7 are both good soils—the quantity of carbonate of lime compensating, in a measure, for the smaller portion of humus; but necessarily requiring the addition of a proportionate quantity of dung to supply that deficiency.

Nos. 9 to 13 are adapted to the Indian corn crop, always, however, requiring manure to render it profitable. They are of average quality of common tillage land; yet, from want of carbonate of lime, are sensibly improved by mild lime, drawn ashes and marl.

Nos. 14 and 15 are denominated light sands, which, when manured and judiciously managed, by frequent alternation of grass, the application of

gypsum, and the pasturing of sheep, may be kept in heart, and rendered productive.

Scarcely any soils contain more than five per cent of humus; but if the staple of the land be loamy, even two per cent will render it fit for the production of grain. The friability of its texture is, indeed, an object of the first importance, for it is a great saving of labor and expense; and if the ground be tolerably well managed and dunged, it can always be maintained in good heart.

The analysis which has been thus given of soils, extends only to the depth of six inches from the surface, without reference to the subsoil, which may greatly affect their value; for however rich soils may be, if that be either too porous or too retentive, they may be rendered, in certain seasons, unproductive. If, however, they contain a layer of nine inches to a foot of good earth, the subsoil may then be considered of little consequence; though a limestone bottom will always command a preference. The exposure, with regard to the sun, and the situation of the land, in respect to its shelter from cold winds, are also objects of such extreme importance, that they may make a difference in point of climate equal to several degrees of latitude. This should serve as a hint to those who commence improving new farms, or who have wood lands in reserve, to leave a belt of wood on the exposed quarters of their farms or fields.

Our readers will be able to perceive from the foregoing, that it is of importance to the farmer to be able to ascertain the composition of his soils. The analysis of soils may be taught in our schools, as readily as a rule in arithmetic—if our schoolmasters knew how to teach the process.

GARDEN AND TURNIP HOE.

We are indebted to the kindness of T. Collins, of Burlington, N. J. to whom we tender our thanks, for a set of hoes of approved model, for the garden and for cleaning turnips. It is stated that these hoes were invented about twenty years ago, by Nathan Stowell, and that they are now extensively used in New-Jersey. They are truly, says our correspondent, a "*first rate tool*"—and we fully concur in his opinion. They may be termed the skim *draw* hoe, in contradistinction to the Dutch *shove* hoe, are more easy of management, and are much better adapted to the cleaning of garden and turnip crops than the latter. They resemble somewhat the turnip hoe, heretofore described and figured in the Cultivator, though they excel it in neatness and material. The cutting part is made of a buck or billet saw blade, in which, while *cold*, the rivet holes should be punched, in order to retain the temper of the steel. The angle of inclination, of the blade to the handle, should be about 45°. Any smith is at liberty to make them. We commend them to the notice of the public.

THE SIBERIAN CRAB APPLE,

One of the most ornamental trees about our dwellings, whether we regard its foliage, its flowers, or its fruit, is becoming the prolific parent of new and valuable varieties of the apple. The peculiarities of the Siberian crab apple tree are, hardiness, coming originally from the north of Asia, beauty of form and foliage, and early and abundant bearing. Knight employed it in most of his artificial crosses, or fecundations of the apple, and obtained the Foxley, Siberian Harvey, Siberian pippin, Yellow Siberian, and Siberian bittersweet, fruits in high repute, in England, for cider, &c. as the result of the cross. J. A. Thompson, Esq. of Catskill, a great amateur in fruits, has obtained from seeds of the Siberian crab, fecundated naturally with his orchard fruits, some dozen or fifteen new varieties, partaking more or less of the foreign parent, but all differing from it. They are of various shape, color, size and flavor; some keeping till April, some fine for eating, and others excellent for preserves. We have some six or eight of these varieties now growing in our grounds.

SWINE.

The Hog is one of our most valuable domestic animals, and when well managed, contributes essentially to the profits of the farm. He devours, and turns to profit, the refuse of all eatable things. But the hog differs, in the return which he makes in flesh for the food he consumes, as much as the ox or the sheep. The great point in all is to produce the most marketable flesh from a given quantity of food. A good pig is judged therefore, by the same criterion as neat stock. "Depth of carcass, lateral extension, breadth of the loin and breast, proportional length, moderate shortness of the legs, and substance of the gammons and forearms, are considered great essentials. In proportion as the animal is capacious in the loin and breast, will be generally the vigor of his constitution; his legs will be thence properly extended, and he will have a bold and firm footing on the ground, to which, however, it is farther necessary, that his claws be upright, even and sound." A short, handsome, sprightly head, with light pointed pendulous ears, are also considered good indications by Lawrence. The best breeds are often thick skinned and thin haired; but the skin is tender, gelatinous, and easy to masticate. It is an unfavorable indication when the head is hung down, "the mouth approaching the earth like a fifth leg, and when the flanks heave and are hollow." Most of the approved breeds have been produced by a cross with the China boar. Good breeders insist that the sow should not produce pigs before she is ten months old, and that the male should not be used after he is five years old.

The pig is kept well in summer upon clover pasture, with the swill from the kitchen and dairy; and the fattening process may be completed, almost wholly, with the apples, pumpkins, small potatoes, soft corn and bran of the farm, properly prepared.

In regard to the diseases of hogs, of which a correspondent in Virginia, Mr. Goldsborough, asks information, we may remark, that prevention of disease is much easier than cure; as relief can seldom be effected after the animal ceases to eat. As preventives, carbonaceous matters, as charcoal, rotten wood, and even permission to root in the earth, sulphur, antimony and madder, are recommended. They are subject, says Lawrence, to measles, blood-striking, staggers, quinsy, indigestion, catarrh, peripneumony or inflammation of the lungs, called heavings. "As aperients, cleansers and alteratives, sulphur, antimony and madder, are our grand specifics, and they are truly useful. As cordials and tonics, treacle and strong beer, in warm wash, and good peas or corn meal and pollard (shorts). In measles, sulphur, &c. and if the patient requires it, give cordials now and then. In staggers, bleeding, fresh air, and perhaps nitre. In catarrh, a warm bed, and warm cordial wash; and the same in quinsy, or inflammation in the glands or throat. If external suppuration appear likely, discharge the matter when ripe, and dress with tar and brandy, or balsam. The heavings, or unsoundness of the lungs in pigs, like the unsoundness of the liver in lambs, is sometimes found to be hereditary; there is no remedy. This disease in pigs is often the consequence of colds from wet lodgings, or of hasty feeding in a poor state; in a certain stage it is highly inflammatory, and without remedy. Unction with train oil, and the internal use of it, have been sometimes thought beneficial."—*Loudon.*

FORTY-THREE YEARS AGO.

We continue our notices of the "Transactions of the Society for the promotion of Agriculture, Arts and Manufactures."

In 1793, in consequence of a request made by the society, the New-York Chamber of Commerce issued directions to captains sailing on foreign voyages, to collect and bring home, rare seeds, plants, &c. for the improvement of our husbandry.

Chancellor Livingston delivered the second address before the society, abounding in the good sense and patriotism which always distinguished that gentleman's writings. We make some extracts from this address, for the benefit of the young and the middle aged—of the politician and the statesman. They have peculiar force at *this time.*

"How much is it to be lamented, that indolence, or pursuits of little moment, withdraw the attention of men, whose lights, whose talents for observation, and whose fortunes enable them to be useful, not only to the community of which they are members, but to mankind at large; not to their cotemporaries only, but to future generations. One great cause of the neglect of agriculture in men of the character I have mentioned, is a misplaced ambition, which generally seizes upon them at the very period of life at which they are best fitted for agricultural pursuits. Youth has too many avocations, and is too unsteady to pursue the slow progress of experiments, and the decrepitude of old age deprives it of the strength and activity necessary in rural economy; it is the season of life in which we may enjoy the sedate pleasures of the country, but not undergo its toils. The middle age, when the effervescence of youth is over—when the body retains its strength, and the mind enjoys its greatest vigor—is the period best adapted to the useful labors of agriculture; but unfortunately this is also the age of ambition, which hurries us away from the peaceful path, where every step is strewed with flowers, to lose ourselves in the endless mazes of politics. And yet, if ambition is the love of fame, how much are we deceived by pursuing it in this rough and thorny track! The little politics of our town, our county, or even of our state, are mere matters of a day; and however important they may seem in our eyes, while we are ourselves the actors on this busy stage, they will appear to others of too little moment to arrest their attention. Our fathers were politicians, their fathers were politicians, and yet we hardly know the parts they severally acted, or even the names or principles of the parties they opposed or supported. In like manner, the intriguing politicians and the wordy orators of the present day, will be buried with their principles and their parties in eternal oblivion, when the man who has introduced a new plant, or eradicated a destructive weed; who has taught us to improve our domestic animals, or to guard against the ravages of noxious insects; who has invented a new implement of husbandry, or simply determined the angle the mould-board should make with the plough-share, will be remembered with gratitude, as the benefactor of society.

"It is the politician's misfortune to believe that every thing is wrong which he does not direct, and that the ruin or welfare of the state depends upon the adoption of his principles: and yet the world was governed before he was born, and will be so well directed after his death, that his present political existence will hardly be remembered one week after his funeral. As the pursuit of fame by the road of politics requires infinitely more talents than falls to the share of the great bulk of mankind, and great epochs or extraordinary circumstances to call those talents into action, but very few can hope for political fame, while their pursuits have a direct tendency to injure the finest feelings of the mind, and to add poignancy to the most painful passions.

"The thorough-paced party politician concurs in many measures that he does not approve; he confides in men that he secretly despises; he opposes the measures of his antagonist, though his reason tells him they are proper. His sins of omission and commission daily stare him in the face, and if ever he finds time to pray, he must confess in the words of the Common Prayer, that "he has done those things which he ought not to have done, and left undone those things which he ought to have done;" while with a distrustful eye he is compelled to guard against the defection of his partizans, he indulges the most rancorous resentment against his antagonists: thus jealousy and hatred, those painful passions, are nourished like the vulture that feeds on the liver of Prometheus, to prey on his vitals. Rural life is exempt from these evils. The husbandman hates no one, because he dreads no rival. If his neighbor's field is more productive than his own, he borrows a useful lesson, and turns his prosperity to his own advantage. Two important maxims are ever in his mind—first, that the earth yields nothing to the idle and the negligent; second, that though labor will do much, yet the return it meets will often depend upon circumstances which it is not in his power to command. He is therefore at once satisfied with the necessity of using the *means*, as the divines say, and of his dependence on the Supreme Being for crowning them with success; thus reconciling (at least in an earthly sense) the intricate doctrines of *works* and *grace*.

"The constant attention that the farmer is compelled to give to the wants of his domestics, and to the animals under his care, render him habitually compassionate, humane, and careful; and, if happiness is to be found on earth, it must certainly be sought in the indulgence of these benign emotions. As Cicero sums up all human knowledge in the character of a perfect orator, so we might with much more propriety claim every virtue, and embrace every science, when we draw that of an accomplished farmer. He is the legislator of an extensive family, and not only men, but the brute creation, are subjected to his laws. He is the magistrate who expounds and carries those laws into execution. He is the physician who heals their wounds, and cures the diseases of his various patients. He is the divine who studies and enforces the precepts of reason; and he is the grand almoner of the Creator, who is continually dispensing his bounties, not only to his fellow mortals, but to the fowls of the air and the beasts of the field.

"To the disgrace of this state it has so happened, that though it has always possessed men of distinguished talents, the rage for party politics, and dissipation, have defeated every attempt to establish any society for the promotion of arts, agriculture, or any literary or scientific object. How many now hear me, who are capable of wiping off this reproach; who have ample means of doing honor to the state, by promoting that of this society, but who have yet offered it no aid! The exertions of a few friends to useful knowledge have enabled us to struggle through three years; and I would fain hope, that many now present will step forward to our future support."

Times were much then as they are now. Men heeded not the humble claims of honest labor—it had nothing to offer to their avarice or ambition—and legislators then, as now, were afraid of being thought rustic or low minded, if they became the champions of farmers' rights.

A SUGGESTION FOR THE COMING YEAR.

A gentleman of high respectability informs us, that the following mode of sowing winter wheat in the spring, has been partially adopted in Tennessee, with the happiest success. In early winter the seed grain is put into casks, and water enough added to soak and cover it. It is then exposed so that the water becomes frozen, and it is kept in this state as far as practicable until the soil is fit for its reception in the spring. It is well known that the operation of frost upon the seed of winter grain has the same effect as if it is sown in autumn—as wheat or rye sown at the setting in of winter will grow and mature. The advantages which are experienced from sowing in the spring, are, 1st, that the grain is not subject to be winter killed; 2d, it escapes the hessian fly in autumn, and possibly it may escape it in the spring; 3d, the ground being fresh stirred for spring sowing, the growth will be more vigorous; and 4th, as it will come into ear late, there is at least a probability that the crop may escape the grain worm. The advantages are so manifest, that the experiment is worth a trial; and we shall feel obliged to some Tennessee correspondent who will give us the details and result of the practice in that state.

TILLAGE HUSBANDRY.—THE TURNIP.

All British writers agree, that the introduction of the turnip culture into Great Britain, which is of comparative recent date, has contributed more than any other improvement in rural economy to the advancement of agriculture. This culture is of very recent introduction here, and indeed may be said hardly yet to have obtained a footing among us. Yet from the limited experiments which have been made, and from the rapid extension of the culture within the two last years, we have reason to believe our climate and soil are well adapted to the growth of this root; and that although it requires some extra labor to secure the crop for winter and spring use, it may nevertheless be cultivated here to great advantage.

The benefits that result to the farmer from the culture of turnips, as a field crop, are three-fold, viz: 1. They serve to ameliorate the soil, and are excellent as a green crop, to alternate with grain and grass. 2. They afford the most animal food, at a given expense, on a specific measure of land. And 3. They return the greatest quantity of manure to the soil. The turnip, like the clover and root crops generally, not only exhaust the soil least, but make up for this exhaustion, in a measure, by dividing and pulverizing the soil, and freeing it from weeds. Although 20 tons an acre may be deemed a fair average crop, the product has in many cases been carried beyond 60 tons. They come in use at a season when succulent food is most in demand; they are eaten by all kinds of farm stock, and constitute, in Britain, the principal material for winter fattening beef and mutton. It will be seen in our March number, that turnip feed is estimated to add one-quarter to the dung of the cattle yard. These considerations induce us to add to the facts we have already published, in regard to the turnip culture, such others as may tend to increase their growth among us.

Soil.—"The *soil best adapted to turnips* is of a dry bottomed, free nature, of some depth and fertility; but, although distinctively termed 'turnip land,' it yet comprises every species of earth which can be profitably used for any arable purpose, provided it be light, dry and friable: consequently exclusive of heavy clays. It must, however, be understood, that although the common root can be grown on the poorest sands and gravels, yet there are some species which require stronger soils—even rich free loams; and they all demand very careful culture, with an abundant supply of manure. The plant delights in a cool, temperate and moist climate," and therefore will thrive best in the northern section of the union, and in elevated districts.

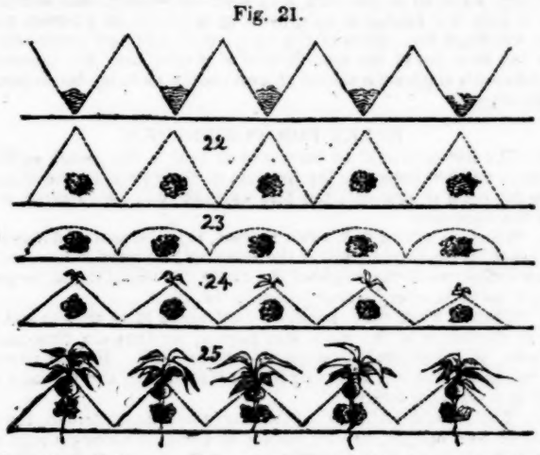
Species.—Although the varieties are numerous, the British writers class them under the heads of white and yellow species, and Swedish. The latter has gained a decided preference, on account of its superior richness and long keeping property. Yet, as according earlier feed, and as enabling them to preserve the Swedes till late winter and spring, the extensive turnip growers in Europe generally cultivate also the white and yellow. The white turnips,—the white globe is preferred,—are fed first; the yellow, which are richer, and keep longer than the white, particularly the Aberdeen yellow, are fed next, and the ruta baga last. The roots of the Swedish are at least one-third heavier than the other species; and their tops are so much more palateable, that cattle, after being fed upon them, will not eat the common kinds, unless impelled by hunger. They are besides more hardy—a large quantity having stood the severe winter of 1835-6, in the open ground, without material injury; though it should be mentioned that they were sown very late, and had not attained their natural growth. They differ in another respect from most other roots—the larger they grow, the greater is their specific weight and nutritive properties. We will add another remark—there are varieties of the ruta baga, differing greatly in excellence. The true sort has yellowish flesh, a globular shape, and is without a stem; but it is apt to degenerate by the flesh becoming white, or by the crown running up into a stem of more or less length. None but the true kind should be employed for seed.—Besides, this species requires a richer soil than will grow the other kinds.

Seed and Sowing.—The time of sowing should vary according to the kind and the climate. It has been suggested, that if the white and yellow were sown in April or May, as in Britain, they would afford fattening materials for cattle and sheep in September and October. We do not know that the experiment has been tried, but we doubt its success, on account of the heats of our summer being unfavorable to their growth. From several years experience with all the kinds, we recommend, for this latitude, from the 20th June to the 1st of July for the ruta baga; from the 5th to the 15th July for the yellows and globe, and from the 20th to 30th July for the flat red and green top—the first of these periods for cold soils and elevated districts, and the latter for warmer situations. For table use, where large size is an objection, the Swedes may be sown in the early part of July, and the flat kinds early in August. Half a pound of good seed will give plants enough for an acre, put in with a drill barrow; yet as many seeds will not vegetate, and as the plants are liable to be destroyed by the fly, we generally allow a pound of seed to the acre, and some give double this quantity. The seed should be full bodied and black, the green and yellow often proving abortive.

Culture.—The drill culture is decidedly best for the Swedes, and for the other large varieties, on account of the greater facility of cleaning and stirring the ground with the cultivator among them. The British writers recommend ploughing directly after harvest of the preceding year. This would be a waste of labor and of ground here. Early southern clover may be cut in time to put in even the Swedes here, and our small grain is off the field here generally in time to sow the white and yellow as a second crop upon the stubble. And at all events, if the crop is put on tilled land, the more recent the ploughing and harrowing before sowing the better. If sown broadcast, the ground should be afterwards rolled, and the crop hand hoed and thinned as soon as the plants have well put forth their first rough leaves. The manure, which should always be applied to this crop, is differently applied. If long manure is employed, we would prefer to have it spread and covered with the plough; though if it is applied

moist, or is immediately after covering saturated with an abundant rain, it may be advantageously applied in the drills. There is a greater propriety in applying short manure, or bone dust, in the drill to this crop, than to almost any other, as the roots gather their food within a limited space.—We have seen short muck applied as a top dressing to the common turnip, when sown broadcast, with the best effect. When cultivated in the drill system, with the manure deposited in the drills, the usual distance between the rows is 27 to 30 inches.

Fig. 21.



Explanation of the cuts.—Fig. 21, shows the ridgelets, when the dung is placed in the drill; then the dung covered with the plough, fig 22; rolled and the seed sown, fig 23; the young plants with the earth hoed away from them with a curved coulter, fig. 24; the plants further advanced, covering the soil with their leaves, and enjoying the dung with their roots, fig. 25.

In sowing, the drill barrow, of which several kinds are now for sale, is the best implement to use. A man walks briskly forward with one of these before him, propelled like a wheel-barrow. The drill is made, the seed sown, covered, and, by some the ground rolled, as he advances. Where this implement cannot be had, a small implement formed like a pepper box, with holes at one end, and fastened to the end of a walking stick, and followed by a man with a rake to cover the seed, may be substituted. Sow upon the fresh stirred soil.

After the sowing is completed, the plants generally make their appearance in from five to eight days; and if the weather is showery, they will soon grow into what is termed the rough leaf, when they are a couple of inches high. The process of horse hoeing then commences, by running the cultivator, or light plough, up and down between the rows, as near to the plants as can be done without injury, or within three inches of them, so as to cut up any weeds that may have sprung up. In two or three days this should be followed by the hand hoe. The weeds should all be eradicated, and the plants thinned, by drawing the hoe crosswise of the row, so as to leave them standing single at the distance of eight or ten inches. The cultivator may be subsequently once or twice passed again between the rows, and the few weeds that will spring up be destroyed. The turnip crop may be advantageously followed with spring wheat or barley.

Quality.—The relative portion of nutriment afforded by each of the following species, has been estimated by the late Mr. George Sinclair, as amounting, in 64 drachms, to

White tankard,.....	76 grains.	Norfolk white,...	83 grains.
Common white loaf,	80 "	Stone or garden,.	85 "
and Swedish turnips, 110 grains.			

The *Turnip fly* is the greatest enemy to the crop; and although many preventives have been recommended, no particular one seems to have given full confidence. Soot and quick-lime have been strewed along the drills, and on the young leaves, at the rate of six bushels per acre, with good success. This mixture is applied when the leaves are dry. Some sow radish seed with their turnips, which first attract the fly. The London Society of Arts awarded a gold medal for this mode of prevention, which consists in drilling, thick, a row of common turnips between the rows of ruta baga. The fly destroyed the former, and spared the Swedes.

Gathering the crop.—The roots may be generally drawn by the hand, or with a potato hook. They should be topped and tailed, and be permitted to lay upon the ground till the loose dirt separates from the roots. We have described the best mode of performing these processes in two or more of our numbers. They should not be cut too close, nor the roots wounded, lest it causes them to rot.

Storing.—They may be stored in cellars or pits, as before described. Let the pits not exceed three feet in breadth, raise the roots a foot above the surface of the ground, sloping from the sides to the centre, cover with a good thickness of earth, and by all means take care to ventilate at the crown of the pile, to prevent the roots heating and becoming rotten.

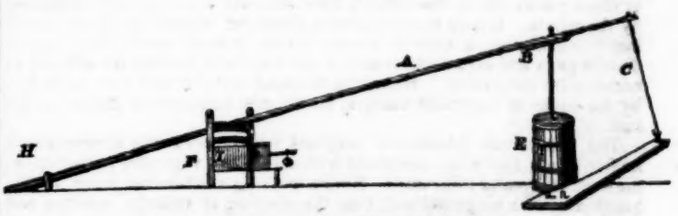
Use.—The ruta baga, in particular, is eaten by all farm stock,—sheep and oxen are fattened upon them. They are almost invariably fed raw, but require to be cut, or sliced. There are machines for doing this in a summary way; but the labor is readily performed with a spade or meat smirk.

"The extended culture of the turnip," says Prof. Lowe, "has enabled us to carry the practice of breeding and feeding our domestic animals to a state of perfection, in which no other country has yet been able to rival Great Britain. The cultivation of the plant in rows, instead of the former method of broadcast, may well be regarded as an improvement of the highest importance. It has enabled the farmer to secure abundant returns, which the former methods of cultivation did not admit of, and so to increase the number of useful animals, that may be maintained upon the farm, and to subject the lighter soils to a species of culture more beneficial than any other that had been before devised for them."

SPRING POLE AND TREADLE CHURN, &c.

JOHN LOW, of Milford, Otsego, has sent us the drawing of a spring pole power, which he applies to churning, washing and pressing cheese; and which he says may also be used to crush apples, corn, barley, to cutting fodder, &c. The pole may be either placed diagonally, as in the cut, or horizontally. A. is the spring pole, made firm at the butt end; B. is a strip attached to the pole, through which the handle of the churn or beater passes, and which is fastened to the pole by an iron bolt, removable at pleasure; C. is a cord by which the tread board is attached to the end of the spring pole; D. the tread board, to which the power is applied; E. the churn or wash tub; F. the cheese press. How far this power may be made useful for family uses, we are unable to say, except from Mr. Low's representation, who speaks of its great utility in his family. As no patent right is claimed, any farmer may satisfy himself in the matter, without much expense or loss of time. Steel rods or springs may be used on the same principle.

Fig. 26.



PRESERVATION OF HEALTH.

Health is truly classed among the first blessings of life; and it requires no argument to prove, that it is easier to prevent diseases than to cure them. These considerations have induced us to publish, in our preceding volumes, several articles on the prevention of disease, from Roget, Combe, and other high medical authorities. The subject which we now offer for consideration, is

THE IMPORTANCE OF FRESH AIR.

According to the best authorities, a man inhales, or takes into his lungs, from six to ten pints of air at every respiration, or breath. This air comes in contact with the blood in the lungs, and both the blood and the air undergo a material change in consequence. The blood imbibes a portion of the oxygen from the air, assumes a florid red hue, and acquires thereby the power of supporting life, and fits it to become a part of the living animal. The air receives, in return for the oxygen, or vital air, which it gives to the blood, about an equal portion of carbonic acid, which vitiates it, and renders it unfit for further respiration; or, if this vitiated or impure air is again respired, the blood becomes likewise vitiated by its contact with it, and all its functions become more or less disordered. Atmospheric air consists of about 79 parts of nitrogen, 21 of oxygen, and nearly one of carbonic acid. A greater or less quantity of oxygen unfits the atmosphere for animal respiration, and causes disorganization and disease in the animal system. When atmospheric air is inhaled upon the lungs, it parts with eight or eight and a half per cent of its oxygen, and receives in return a like quantity of carbonic acid. Thus atmospheric air becomes rapidly vitiated by being breathed, and is as speedily restored to its purity by healthy vegetation, which takes up the carbonic acid, or decomposes it, and gives off, or sets free, oxygen. According to Dr. Bostock's estimate, an averaged sized man consumes about 45,000 cubic inches of oxygen, and gives out about 40,000 of carbonic acid in 24 hours. "Taking," says Dr. Combe, "the consumption of air at 20 cubic inches at each breathing, as a very low medium, and rating the number of respirations at 15 in a minute, it appears that, in the space of one minute, no less than 300 cubic inches of air are required for the respiration of a single person. In the same space of time, 24 cubic inches of oxygen disappear, and are replaced by an equal amount of carbonic acid; so that in the course of an

hour, one pair of lungs will, at a low estimate, vitiate the air by the abstraction of no less than 1,440 cubic inches of oxygen, and the addition of an equal number of carbonic acid, thus constituting a source of impurity which can not be safely overlooked." See Combe, chap. vii.

Atmospheric air becomes vitiated principally by one, or a combination, of the following causes:

1. By animal respiration.
2. By decaying animal and vegetable matters.
3. By stagnant waters; and
4. By combustion in close apartments.

Many cases are cited of the fatal effects of breathing highly vitiated air, in prisons, in small close apartments, and in unhealthy districts. One of the most horrible was that which occurred in the B ack-Hole of Calcutta, where one hundred and forty Englishmen were thrust into a confined place, eighteen feet square, in which there were but two small windows on one side, and where ventillation was impossible. Scarcely was the door shut upon the prisoners, when their sufferings, for want of fresh air, commenced, and in six hours ninety-six of them were dead! In the morning only twenty-three of them were living, many of whom were subsequently cut off by putrid fever, caused by the dreadful effluvia and the corruption of the air. Other cases are recorded of persons dying, for want of fresh air, in small close cabins; and the numerous cases annually recorded of deaths caused by burning charcoal in close apartments, is to be attributed to the consumption of the oxygen, and the generation of carbonic acid by the combustion of the charcoal. But it is not only where death ensues that the breathing of vitiated air is hurtful; it is *always* prejudicial, more or less to health; it impairs the constitution, and is often the latent cause of diseases which ultimately prove fatal. "The chief symptoms," says Orfila, "which follow the breathing impure air, are great heaviness in the head, tingling in the ears, troubled sight, a great inclination to sleep, diminution of strength and falling down." These sensations are experienced in crowded, heated rooms, in steam boat and canal boat cabins, &c.

Decaying animal and vegetable matters are a prolific source of disease, by vitiating the atmosphere we breathe, particularly in cellars, close yards, or other places where the effluvia they generate is not speedily dissipated by the winds. Hence fevers are most prevalent where due regard is not had to cleanliness, as over dirty cellars, near filthy yards and lanes, and in dwellings in and about which animal and vegetable matters are suffered to accumulate and putrify. Hence the sickness that pervades new countries, by the decay of vegetable matters, on the first exposure of the soil to the sun.

The deleterious influence of stagnant waters upon the atmosphere is known to all; and when combined with animal and vegetable putrefaction, the evil is greatly increased. Hence nothing contributes more to the healthiness of a neighborhood, than the draining of swamps, marshes and wet lands.

Combustion also vitiates the atmosphere in close rooms, particularly gas lights—a single gas burner consuming more oxygen, according to Combe, and producing more carbonic acid gas, to deteriorate the atmosphere of a room, than six or eight candles.

Among the precautions which these facts suggest, for the preservation of health, we may mention the following.

To locate our dwellings on dry grounds, and in airy situations, remote from stagnant waters. The cellars should be dry, with windows at opposite sides, if practicable, for ventilation, whenever the weather will permit, and they should be kept free from all putrifying vegetable matters. The rooms should be lofty, and rather capacious than contracted, and should open, by windows, to the exterior, and should be all ventilated every fair morning in summer. It adds to the beauty of rural abodes, as well as to the comfort and health of their inmates, to surround them with fruit and ornamental trees. The offices and structures for farm stock should not be contiguous to the dwelling, nor should the cattle or swine be permitted to range and litter about it—perfect cleanliness should be observed in and about the house, if we would breathe a pure atmosphere.

In regard to our personal habits, these facts inculcate the propriety of taking frequent exercise in the open air, particularly in summer mornings, when it is most pure and fragrant—of avoiding close crowded apartments; of accustoming ourselves to a medium temperature in our dwellings—of sleeping in rooms without fire, with open doors, that fresh air may at all times have access, and of not lodging too many persons in the same room.

These rules, accompanied by temperance in our diet, and in the indulgence of our passions, and by a strict regard to cleanliness in our persons, would greatly reduce the amount of human sickness and misery, would multiply our comforts, and prolong life.

Pure fresh air is not only essential to the health of man, but to every animal under his control, and even to the healthful development and maturity of the plants he cultivates.

STEEPING SEED GRAIN,

Is objected to by a correspondent in our last, as a general practice. In addition to the reasons which we then urged in its favor, we find a fact recorded in the transactions of the old agricultural society, which, if true, affords a potent argument in favor of steeping at least seed corn. Robert Johnson, Esq. then a senator from Dutchess, states in vol. 1 of the transactions, that steeping seed wheat in a pickle of salt-petre had the effect to facilitate its ripening two weeks, and to increase its product at least 25 per cent, as was evidenced by a comparison with wheat sown in the same field, in which salt petre had not been used in preparing the seed. It was this article which led us into our practice of using salt-petre in our steep for seed corn, and which we have followed for sixteen years. The effect here ascribed to the nitre may seem incredible; and still it is not more so than that produced by gypsum upon clover, to a person who has never witnessed the effects of the latter, upon a hungry sandy soil. We know but little yet of the specific food of plants; and the importance of Mr. Johnson's suggestion should at least induce us to try the experiment, comparatively.

RULES FOR PLOUGHMEN.

1st. The horses should be harnessed as near to the plough as they can be placed without impeding the freedom of their step; for the closer they are to the point of draught, the less exertion will be required to overcome the resistance.

2d. When ploughing with a pair abreast, the most powerful horse should be worked in the furrow; but if the team be harnessed in line, and there be any difference in the height of the cattle, the tallest should be put foremost, if he be in every respect equal to the other.

3d. When at work they should be kept going at as regular and good a pace as the nature of the work will permit; for they are thus more manageable, and the draught easier than when slow. By due attention to this, the heavy soil will also cling less to the coulter, and the land will be found to work more freely.

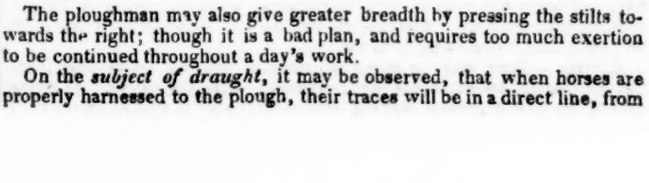
4th. The breadth and depth of the furrow being ascertained, the plough should be held upright, bearing equally all along on a straight sole, and be made to move forward in a regular line, without swerving to either side. The edge of the coulter should be set directly forward, so that the land-side of it may run in a parallel line with the land-side of the head, and in such a position that their slant, or sweep, may exactly correspond.

5th. The ploughman should walk with his body as nearly as possible upright, without leaning on the stilts, and without using force to any part, further than may be absolutely necessary to keep the implement steadily in a straight line. He should also be sparing of his voice, and of correction to the team: of the former, because too much cheering and ordering only confuses the cattle; and of the latter, because punishment, when often repeated, at length ceases to have due effect, and thus leads to unnecessary beating.

There is, in fact, a certain degree of taste in ploughing, as well as in every thing else,—a kind of tact, which is difficult to be taught, and hardly to be acquired except by a sort of instinct. The ploughman who tills the ground with dexterity, never presses upon the plough without necessity—a mere touch, or a glance of the eye, tells him when she is going wrong, and a slight turn of the hand sits her instantly right; whereas a clumsy fellow, without feeling in his palms, or readiness or perception, is continually either throwing the plough out, or she is riding upon the heel or point, straining the team, tiring himself, and altogether making bad work.

There are various modes of regulating *the pitch of the plough*. Thus it may be made to go deeper by lowering the back bands, or increasing the distance of the team, by setting the muzzle higher up in the index of the beam, and by slanting and giving the coulter a greater rake forward; and the reverse will make it go shallower. It can also be constructed with a regulating lever, which may be attached to any of the foot and wheel ploughs now in use, and can be used occasionally, or otherwise, as circumstances may require. The side motion may be thus altered so as to make the plough take a broader slice. or, as it is commonly called, "to give her more or less land:" by putting the hook of the traces into the notches of the muzzle more towards the unploughed ground, *you take land from the plough;* but by shifting it to the furrow-side, *you give it land.* It ought, therefore, to be made about eight inches in length, and may be fixed either to the side of the beam, or to the top and bottom, as here described.

Fig. 27. Fig. 28.

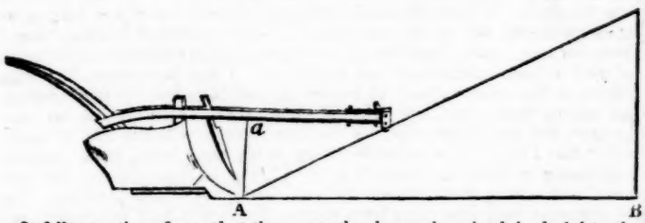


The ploughman may also give greater breadth by pressing the stilts towards the right; though it is a bad plan, and requires too much exertion to be continued throughout a day's work.

On the *subject of draught*, it may be observed, that when horses are properly harnessed to the plough, their traces will be in a direct line, from

the point of draught at the shoulder, to the point of the share, passing through the regulating notch of the muzzle. It is proper, therefore, to ascertain the animal's height, in order that the muzzle may be fixed accordingly; but as his shoulder is not so far from the ground when he is pulling, as when he is in a state of rest, an allowance must be made for the difference. Thus if a line be drawn from A, at the share of the plough, to B, and then a perpendicular line from B to C, at the horse's shoulder, an angle is formed; then if another perpendicular line be formed from A to *a*, and measured upon the same scale, it will give the height of the beam from the ground, at the depth at which it is to be ploughed.

Fig. 28.



It follows, therefore, that the more the beam is raised in height, the longer it must be made, and consequently the traces of horses must be lengthened: this, however, lessens their power; for it is sufficiently well known, without entering into any mathematical proof upon the subject, that the farther the animal is placed from his work, the less effectual will be his exertions. The Rev. Mr. Priest made this experiment, with a furrow 9½ inches wide and 3¾ deep; when the length of the horses' traces was 10 feet 5 inches from the point of the share to the point upon their shoulders upon whence they were drawing, the force exerted upon the point of draught of the plough, or the power of their draught, was only 2¼ cwt. but when the traces were lengthened to 15 feet 6 inches, the force exerted to draw the plough was 3½ cwt.—*See Brit. Husbandry.*

SUMMER SOILING.

This term is applied to the feeding of cattle with grass, or grain, or other herbage, cut and fed to them green, in stables, sheds, or yards. It is extensively practised in Flanders, Holland, and other districts on the continent of Europe, and partially in Britain, and particularly in the vicinity of the large towns, where land is in great demand, or where it is naturally rich, or has been rendered so by art. In these cases the profits are palpable, at least twice the number of cattle being subsisted upon the same ground, when the fodder is cut and fed green, as when depastured.

The advantages of the practice are stated to be, the saving of the crops from destruction when in pasture, by treading, staling, dunging and lying down upon them; in economizing food—cattle eating many coarse kinds of grass and weeds, when cut, which they will not touch when growing in the field; in the great saving of manure which it effects; in the advantages of rest and quietude to the animals; in the preservation of the ground from being poached in wet weather; and in the diminished expense of making and repairing fences.

The objections to the practice are, that it prevents cattle from healthful exercise, necessary to the young, to cows and sheep; that upon poor farms the saving in food does not make up for the expense of labor in tending the stock: and that it interferes with the regular routine of farm labor. And, in its application to us, it may be remarked, that we produce neither the tares, the sanfoin, nor but few of the turnips, which make a considerable portion of the soiling food in Europe. Our reliance would be upon early sown winter rye, clover, lucern and the common grasses.

Nicely managed experiments have been made, by some of the most eminent agriculturists of Great Britain, to decide upon the relative merits of soiling and pasturing, some of the results of which we will state in a summary form.

Mr. Curwen, well known to the agricultural reader as one of the most eminent farmers and greatest experimentalists in Britain, and withal a zealous advocate for soiling, instituted a number of experiments, which have been recorded. His first experiment was upon two cows, and the experiment continued from the 14th May to the 1st of October, one being soiled and the other pastured. The soiled beast gained 16 stone, the pastured one 9 stone. The first, after taking into account the relative value of food consumed, paid a profit of 10½d. (say 18 cents) per day: the other of 7½d.

He next took six three year olds, tied them up on the 27th June, and soiled them till the 9th November, *with grass of very little value*, cut from the hedges, plantations and walks, and during the last month had an addition of carrot and turnip tops. They gained 75 stone of flesh, estimated to be worth £17. 10s. or an average of £2. 18s. 4d. each (about $11. 85.)

He next fed 17 calves, beginning when they were two months old. During the first month they had one gallon of new milk per day; for three months afterwards, three gallons. Turnips and hay were given with the milk. From June till October the food was clover; afterwards, till the end of May, turnips. In size they were little inferior to those of double their age. At 18 months old, one was slaughtered. The live weight, 770 lbs.; the carcass weighed 474 lbs., loose fat, 37 lbs. This was an Ayreshire; the Durhams, of which the flock in part consisted, were larger and in better condition, and would have killed 650 lbs. at least.

Mr. Brown, of Markle, made an experiment with 48 cattle, bought in autumn, and wintered in the farm yard. They were equally divided, and on the 4th of May one half were put to pasture, and the other into the yard, where they got a small quantity of Swedish turnips, until the clover was fit for cutting. During June and July, they were subsisted upon cut clover, fed in cribs, and the offal cleaned out and fed to swine. The yard cattle were then fed with tares until the second crop of clover was fit to cut, and upon this they were kept until sold, ten on the 28th August, and the residue on the 28th September. The statement of the cost and profit is given as follows:

The 48 cattle cost together, for purchase and wintering, £503 02 00

The 10 best of the soiled cattle were sold at £17 15s., and the remainder of the whole number at £14 5s. each, thus yielding,

For the soiled lot of 24, £377 00 00

ditto grazed do 342 00 00

Or 29s 2d. (about $6) per head more upon the soiled than the grazed cattle; although they were all purchased at one price, and separated with most accurate fairness. The food consumed by the 24 soiled cattle was grown upon 12¾ acres, and consisted of 8 acres of clover, 3 do. tares, and 1¾ of Swedish turnips. "Being £125 9s. for the cost of food and profit upon the stock." Mr. Brown expresses his belief, "that the saving per acre by soiling will amount to 50 per cent; or, in other words, that a field of clover and rye grass will feed one half more beasts when cut by the scythe, than when it is depastured." Sir John Sinclair states, that the same number of stock were soiled on 17 acres, which had always previously required 50 acres of pasture. In a trial reported to the board of agriculture, 33 head of cattle were said to have been soiled, from the 20th May to the 1st October, on 17½ acres, on which it is stated it would have required 50 acres to have pastured them. The above facts are abstracted from British Husbandry, Low's Elements, &c. which see.

We have gone into this exposition, from a conviction that soiling may be beneficially introduced here, in finishing cattle, stall-fed in the winter, for the spring and summer market—in feeding working cattle—and as an auxiliary means of increasing the products and profits of the dairy. We have, or may have, pretty ample resources for this mode of management, in the Swedish turnip, the lucern and the clover. The turnips will serve till June, with hay or straw. We speak from experience; for we have thus fed them for the last dozen years. The lucern is fit to begin to cut from the 15th to the 25th May, and clover by the middle of June. The precaution must however be observed, in changing from dry to green food, to use the latter at first sparingly, or to begin by mixing the two kinds.

Stall-fed cattle generally lose at first, on shifting them in spring from the stable to the pasture. Working cattle, after the labor of the day, fill themselves with cut grass more speedily than they can at grazing, and have more time, when fed, to ruminate and rest. And with milch cows, particularly when pastures are short, a bite of cut lucern or clover, at morning and evening, makes an astonishing difference in the product of milk. An acre of good lucern, judiciously fed in this way to a herd of cows, would, we think, increase the profits of the dairy at least $50 in a season. We have had as great a quantity of milk from cows in December, fed with roots, as in June in good pasture.

In conducting the soiling system, it is best to give the food often and in small quantities, as otherwise the cattle will blow upon and reject it; and given in too great abundance it will cloy them, and will be no longer relished. Straw mixed with green food tends to correct any disposition to looseness in the bowels. The remains of the food should be removed to the pig-pen, or elsewhere, immediately after the stock have done with it.

Anti-cattle choaker, is the term applied to a tarred rope, to remove obstructions in the throat of animals, as apples, potatoes, &c. The public are indebted to *Paine Wingate*, a highly respectable farmer of Maine, for the suggestion. He takes a tarred rope an inch in diameter, and six feet long, untwists three or four inches at the end, and leaves a tuft of it loose, in order to make a kind of ball or swab-like end, and this he covers with a piece of linen or canvass, and winds it tightly and smoothly with yarn. With this the obstruction may be forced into the stomach without injury to the beast. It is better than a cart-whip, or an elastic cane with a dosset of tow, which we see recommended in the English books.

The Wintergreen, (Chymophylla corymboso,) which abounds in all our pine woods, although an insignificant humble plant, possesses valuable medical qualities, and affords a proof of the correctness of St. Pierre's remark, that Providence has provided, in every country, not only what is most essential to the sustenance of its animal population, but that which is most essential to its medical wants. It appears by a paper read before the London Medico-Botanic Society, that it has long been held among the In-

dians of reputation in fever and rheumatism, and is tonic and astringent, but is principally valued as a diuretic. Dr. Somerville used an infusion in dropsy with good effect, and the same has been testified by Dr. Manet and Dr. Barton. The wintergreen is extensively used in domestic hop beer, and is considered a purifier of the blood in spring.

Grand exhibition at Ghent.—On the 10th March there was the most brilliant exhibition of rare and beautiful exotic plants at Ghent, ever recorded, perhaps, in the annals of botany and floriculture The Flemings, it is known, excel in a taste for floriculture; the aristocracy are mostly amateur florists or pomologists—the commercial gardens are numerous and extensive, and the love of flowers pervades all classes. The show in March was at the inauguration of the Cassino, a splendid hall just completed, at Ghent, for floral exhibitions, 314 feet in length. The judges were 29, and were from Vienna, Paris, London, Brussels, and other principal towns. More than 5,300 plants were arranged in their respective collections, and 320 persons sat down to the dinner, embracing noblemen, gentry and gardeners.

Merino and Saxon Sheep.—Inquiries are frequently made of us from the south, at what price Saxon and Merino sheep can be had. In reply to these queries, we are authorized to state as follows: Mr. Daniel Curtis, of Canaan, Columbia county, offers Saxon and Merino bucks at from five to fifteen dollars, according to age and quality. Mr. H. D. Grove, of Hoosick, Rensselaer county, offers his Saxon bucks at from fifteen to twenty dollars; and our neighbor, C. N. Bement, will charge, for old-fashioned Merino bucks, twenty-five dollars These prices are exclusive of the charge of transportation. Mr. Curtis has sent us a card containing specimens of the wool of more than sixty individuals of his flock; and Mr. Grove has also sent us many specimens from his superior Saxon flock. These specimens may be examined at the office of the Cultivator.

The Grub Worm, we are advised, is already doing much mischief in the fields of young corn at the south, and even in the wheat fields. We therefore repeat the suggestion, that a handful of unleached ashes scattered upon each hill, or of ashes and gypsum, or of ashes and lime, promises the best preventive of the evil.

The Rye crop in New-Jersey, so far as we were able to judge during a jaunt across the state from Amboy to Camden, will prove almost a total failure. With deference we remark, that the prevailing mode of cultivating this crop there, seems to be a very bad one. Although the country is sandy, it is very flat, and the crops seem to suffer from water reposing upon or near the surface. The fields are generally cultivated with a flat surface, and the rye appears to have been sown with corn, before the harvesting of the corn. This is slovenly farming; and the vegetable matter which covers the field at the corn harvest, is virtually lost. If the land was cultivated in sixteen or twenty feet ridges, in the direction of the slope, the crops would suffer much less from wet and cold, and no more from drought, than they do now. And if the vegetable matters upon the surface in autumn were turned under, they would afford food to the crops, which they apparently very much want. Under drains would prove highly serviceable.

"Every conveyance of real estate within this state, hereafter made, shall be recorded in the office of the clerk of the county where such real estate shall be situated; and every such conveyance not so recorded, shall be void as against any subsequent purchaser in good faith and for valuable consideration, of the same real estate, or any portion thereof, whose conveyance shall be first duly recorded." *See Revised Laws.*

Acknowledgments.—Seeds of the seven years pumpkin, and of a new squash, from W. Wetmore, Ohio; Wilson's long-keeping apple, a very handsome sound fruit, from Robert Speir, Esquire, of Saratoga; three beautiful new apples, from J. A. Thompson, Esq. of Catskill, of which the Beauty of Wilts is the best, also Rohan potatoes; Baden corn, Chilian peas, beans and lentils, from H. L. Ellsworth, Esq. Washington city; files of the Gardner's (London) Gazette, from G. C. Thorburn, of New-York; Prospectus of the American Society for the diffusion of useful knowledge, from G. D. Abbott; a specimen of beautiful corn, from D. Wendell, Esq. of Murfreesboro', Ten ; a set of garden hoes, and a weeding fork, of approved model and make, from T. Collins, of Burlington, N. J. Grape cuttings, forwarded to us by a friend in Arkansas, have not come to hand.

Wanted.—Seeds and bulbs of flowering plants indigenous on the western prairies—particularly of species not growing in the Atlantic states.

CORRESPONDENCE.

DISEASES OF CATTLE.

Mr. J. Buel,—Dear Sir,—As my farm is better adapted for grazing than it is for raising grain, I have, for a number of years past, turned my attention, not unprofitably, to the former; my dairy has consisted of from twenty to twenty-three cows, with a proportion of other stock. I succeeded very well until the summer of 1833, at which time a distemper appeared amongst my cattle, which has hitherto baffled all my efforts to get rid of. Having lately become a subscriber for the Cultivator, it occurred to me, that if information was to be obtained from any quarter as to the cause, nature, treatment, &c. of the disease, your valuable columns was the place. In hopes that either yourself, or some one of your numerous correspondents, will be able to point out a better course of treatment than I have yet fallen upon, I shall endeavor to give as plain and short a description of the loathsome malady as I am capable of. I may here state, that some others in this neighborhood, as well as myself, have had the same distemper among their cattle, and with the same result. That my loss has been greater, and that the trouble has continued longer with me than with any other that I know of, is probably owing to my stock being larger, and my continuing to keep the number good, I being loath to give up the business; and selling them, unless for beef, being out of the question. Out of nineteen head that have been seized, three only have recovered, and one of them has since died from what I considered its effects on her constitution.

The first symptom observable, is running at the eyes and nose, at first thin and of a greenish colour, but soon becomes a tough yellow matter. A violent fever soon comes on, accompanied with shivering and cough, the appetite gone, and a general debility takes place, so that the healthiest looking animal, in two or three days, (as the saying is) becomes like two boards. The fæces is not alike in all, some are soon attacked with diarrhœ, which continues to the last; others continue in the opposite extreme; in some cases there is a continual inclination to urine, which is of a redish colour, as if mixed with blood, others are not much so; if in calf, they invariably cast it at whatever stage of its existence it may be. Three or four days puts an end to those that are most violently seized, but not so with others, who will linger for two or three weeks. The eye, which is sunk and inflamed, becomes coated over with a yellow film, caused from its continual running, and they become perfectly blind. The skin cracks open and peels in large pieces from the mouth, lips, nose and teats; the skin on the back also cracks, from which a yellow watery matter exudes; the nose gets stopped, and a continual gasping for breath is the consequence. If the weather is warm, the fly finds a proper receptacle for her eggs in the animal, and I need not state the consequence. We are glad to kill them to end their misery, and rid ourselves of the loathsome spectacle. On opening them, (which I have had done in one or two instances by a respectable physician,) inflammation had taken place in the intestines generally, and in all cases the gall bladder is greatly enlarged, the liquid in which seems to have discharged into the lungs, at least the parts adjacent are colored as if from that cause. They are alike liable to the disease at any age, and in any season of the year. I have treated them for what is usually termed jaundice or yellows, but no treatise on that trouble that I have met with, describes it exactly as it exists among my cattle. As a preventive, I have had them all bled, and fed them for a length of time, (mixed with their salt and otherwise,) bitter articles, such as soot tea, tar water, aloes, &c My treatment, when sick, has been bleeding, purging, and the various medicines usually recommended for the above named disease; but all to no effect, as you will infer from what I have already stated. If, from the statement I have given, you or any of your intelligent correspondents can give a satisfactory answer to the following questions, you will confer a favor on the public, and especially to the subscriber. 1st. What is the disease? 2d. Has any thing local a tendency to produce it? 3d. If in the affirmative, what things have this tendency? 4th. If not, what are the causes? 5th. Is it infectious?* 6th. What is the most proper treatment? And 7th. What the best way to get rid of it?†

I am, dear sir, yours respectfully,
JAMES SMEALIE.

Princetown, Schenectady co. May 9th, 1837.

When I commenced the above, a favorite cow just began to spring bag, was seized; she was in excellent order, and to all appearance, perfectly healthy; her case has been as violent as any I have had, she living but three days and a half from the time I first observed her sick. I have just opened her, the gall bladder appeared to be at least three times larger than its natural size, and part of its contents had evidently been discharged on the lungs and liver; the lungs were very much swelled and inflamed. She appeared to be choked to death.

If you have met with any thing in your extensive reading relative to this disease, that you think might be of advantage, you will confer a very special favor if you will communicate it by post. I have come to the de-

* Although nineteen head have had this distemper during the time it has lurked among them, never but once were two of them sick at a time.

† We are obliged to defer our answer till the July number.—*Cond.*

termination to make what I can out of my stock through the summer, and turn them all to beef in the fall; but I may have need to doctor several of them before that time. A letter addressed to me, directed to the care of Wm. Lyman, Esq. Schenectady, will be forwarded immediately.

Yours, &c. J. S.

COTTON SEED OIL CAKE.

JUDGE BUEL,—Dear Sir,—In noticing the value of the oil obtained from the cotton seed in the May number of the Cultivator, you have incidently referred to the cake obtained from the seed, as valuable food for stock. Last year I obtained a quantity of the cotton seed oil cake from New-Orleans, which cost on delivery at my farm in Dutchess county, about $20 per ton. It was shipped in the beginning of warm weather, and was not perfectly sound when it arrived; but in the state it was, I found it the most valuable food I have ever seen, for nearly all kinds of farm stock. I fed it to two fattening cattle in the summer, which improved their condition considerably; but owing to irregularity in feeding, I had not a very good opportunity of testing its value in their case. During the winter, it was given freely to all my milch cows, and young stock and sheep. From the last of November to the middle of March, four cows fed upon it, at the rate of about four or five quarts a day, made over two hundred pounds of butter. The cows calved in April and May. The sheep were in superior condition all winter, being fed a very small quantity daily. Their lambs came early and found plenty of sustenance, which I attribute mainly to the use of oil cake. To milch cows I would give from four to eight quarts daily. Along the Connecticut river, where it is extensively used, it is considered as food for cows superior to any other. I can certainly say, that the quantity I purchased, three tons, and which lasted till spring, paid for itself by the saving of hay. The butter made by its use and the improved condition of stock is clear profit.

At the south, I am told by an intelligent planter, that they can make but little use of it as food for stock, owing probably, to the heating nature it possesses. An oil establishment at New-York, in Laurens-street, keeps a constant supply of it, selling largely to the milk men and farmers on Long Island. The importation of this acticle in great quantities may serve a very important use in the agriculture of the north One ton is richly worth, according to the opinion of all who have used it, two tons of the best hay. This may enable farmers to winter three times their usual stock, and not only improve the condition of their stock, but add permanent value to their land. If it merely paid for itself in saving hay, the increase of manure, the farmer's philosopher's stone, would be profit enough.

The farmers near New-York pay for it at the oil manufactory about $28 per ton. It can be afforded, however, at a less rate than that, if the demand is great enough to warrant a general importation.

I ought to have observed, that though swine are very fond of it, it is very doubtful whether it is proper food for them. Yours, &c.

Dutchess county, May 8th, 1837. J. B. J.

MORE PROFITABLE TO FEED HAY THAN TO SELL IT.

DEAR SIR,—It is very generally believed that, when hay is selling at fifteen or twenty dollars a ton, a farmer cannot afford to feed it to stock; and the consequence is, that in the fall of the year, farmers dispose of their cattle at very low prices, and just at the time when their most important uses should commence. I believe this opinion to be founded upon an error, that may lead to most lamentable consequences. The true basis of all good husbandry, is the preservation and proper application of the greatest possible amount of manure. The farmer who sells his stock in order to dispose of his hay, deviates very widely from this principle. But I believe that a farmer can winter stock, with more profit, than to dispose of his hay, even at $20 per ton; and as assertions are nothing, unless founded upon some experience, allow me to detail a case in point. Let me, in the first place, however, observe, that in the following statement, the source of profit from wintering stock is mostly attributed to manure. Now, some farmers may think I set too high a value upon that substance; but in making a correct estimate of the relative profits of the two methods here spokon of, the real value, as near as may be, must be set upon it. I think that manure is really worth twice as much as I have valued it at, and as this is the only point which admits of difference, I should be pleased to have your own opinion upon it.* The following is the case:

Upon my farm in Dutchess county, we last year wintered five horses, five cows, seven head of young stock, and one yoke of working cattle. The amount of food they consumed, with the highest market value, is as follows:

15 tons hay, at $20 per ton,	$300 00
250 bushels of mangold wurtzel, at 25c.	62 50
75 do. ruta baga, at 37½c.	28 12½
1½ tons cotton seed oil cake, at $20,	30 00
Oat straw,	30 00
	$450 62½

*We fully concur with our correspondent as to the value of manure, when judiciously employed.—*Cond.*

Deduct charges for pressing hay, drawing and commissions on sale, ... 100 00

$350 62½

This is more than they really consumed, and the articles are put much above their market value. For instance, the fifteen tons of hay was the remnant of about seventy tons, that was not marketable. We will now see what was realized from feeding it to the stock named above.

Cr. by 220 pounds fresh butter, at 25c.	$55 00
" " milk fed to swine,	15 00
" " 200 ox-cart loads of stable dung, well heaped, at $1.50 per load,	300 00
" " increased growth and value of stock,	25 00
" " one Durham calf fed on milk in the winter,	5 00
	$400 00
To balance,	350 62½
	$49 37½

This statement leaves a balance, in favor of wintering stock, of $49.37½. It may be objected, as I have previously remarked, that I charge too high a price for the manure. This I must leave to the judgment and consciences of farmers, with the single remark, that if any farmer should be guilty of selling from his yard, a large ox-cart load of unfermented manure for twelve shillings, he would be actually robbing himself. Short crops of hay are not to be remedied by dispensing with manure. This system would soon make short crops indeed; the farmer would soon be spared the trouble of either selling or feeding.

There is one other consideration to be noticed in the foregoing statement If, instead of three of the horses, there had been kept four milch cows, more than $50 would have been added to the profits in feeding. So with the young stock. Besides this, farmers who sell their milch cows in the fall for fifteen or twenty dollars, are compelled to pay thirty or forty dollars in the spring to get them back.

Yours respectfully, J.

Dutchess county, May 12th, 1837.

A DIGEST OF THE PRINCIPLES OF AGRICULTURE PROPOSED.

New-Bedford, Pa. February 24th, 1837.

DEAR SIR,—I have thought, that from the great mass of agricultural information now before the public, a digest could be made in a scientific form, reduced to proper heads, and under such arrangements, as to impose on agriculture the form and system of a science. The whole art, or from henceforth, the science of agriculture may, with propriety be comprehended under three general heads, viz: Keep the land rich; keep the land dry; keep the land clean. Under the head of keeping the land rich, is embraced the whole knowledge of preparing, managing and applying manures. Under the head of keeping the land dry, are included the whole art of draining Under the head of keeping the land clean, are comprehended the entire knowledge of destroying weeds.* Each of these admits of their divisions, and subdivisions. I have merely suggested the above, that you, or some one who has the interest of agriculture at heart, would essay to throw the knowledge, which is now extant, into form and system. The advantage which this would be to agriculture is but imperfectly appreciated at present.

Sir, were your correspondents, (when they advise you of the result of their labors or their experiments,) to be particular in describing their mode of operation, the date of planting, the kind and quality of the soil, and particularly the subsoil, it would greatly assist in giving stability to practice. The term loam is too vague to be used without connection; the particular kind of loam ought to be specified, the term sandy or silicious, clay or agillaceous, ought always to be prefixed, as either of these predominate. Your correspondents ought to be particular in stating, whether the soil is calcareous or not, and if possible, whether in excess or deficient; also the spontaneous vegetable productions which prevail, for these are commonly indicative of the character of the soil. Were close and attentive observation to be thus exercised by all our intelligent farmers, and if these observations were collected and arranged by men of experience and talents in agricultural pursuits, there is no manner of doubt, but agriculture would thus assume the infallible character of science, and could thus be introduced into our schools, and taught with the certainty of demonstration.

The Cultivator has a very respectable patronage; this shews that in every portion of the Union there are men who know how to appreciate the merit of the publication; but there are many, very many, of your subscribers, who see no beauty in these things. Upon the character and recommendation of others they have subscribed, but are too much attached to the old habitual road to deviate a line to the right hand or to the left; the inveteracy of habit, unaccompanied with thought, has doomed them to ignorance in agricultural pursuits, and effectually disqualified them from appreciating the merit of agricultural periodicals. I can venture to affirm,

* We like this suggestion, and will endeavor to profit by it.—*Cond.*

their number will daily decrease, amongst the rising generation they shall count but few; for the diffusion of knowledge, in every department of life, is fast diverging to an unknown circumference. The sun of agricultural science has now arisen in the east, already he has attained some altitude, nor shall he cease to ascend until he culminates and bursts with a flood of meridional glory upon an enlightened and happy agricultural people.

I am, sir, yours respectfully,
WM. JOHNSON.

EFFECT OF LIME AND SALT ON WHEAT.

On the 17th of October last, I sowed a small lot in wheat; in passing through it a few days since, I was surprised to find that about one-half the field was pretty well set, the other part not having more than one stalk in a foot square, on an average, being all pulled up by the severe frost of the winter, and lying on top of the ground. This, at first, appeared to me unaccountable. I knew I had sowed the same kind of wheat, and within two hours of the same time. It appeared to follow a direct line across the field; on one side, it stood sufficiently thick for a good crop, on the other, not enough for one-fifth of a crop. After a little reflection, I recollected that with the view of taking out the chess or cheat, I had treated one-half the seed in the following manner, viz: I saturated a quantity of water with common salt, in order to increase its specific gravity, so as to cause the cheat to swim on the top; into this solution I threw one-half the seed, and removed the cheat. In order to enable me to sow the wheat immediately, I rolled it in lime, to make it dry; this was the only difference in circumstances that occurred. In order to ascertain whether this treatment had any agency in producing the appearance above described, I followed the direct line formed by the good wheat on one side, and that which was pulled up by the winter on the other, to the fence, where I recollected I had made a mark in a rail with my knife, at the time of sowing, when it appeared, that the line across the field precisely corresponded with the appearance of the wheat, on one side of which the salted and limed wheat was sowed, on the other the dry wheat. Indeed, so distinct was the line of separation, that the most casual observer could not avoid noticing it. A few days since, I took a friend into the field, (after relating the circumstance,) I requested him to start in the middle, and follow the line, and see if he could discover the mark on the fence; he went directly to it On a more minute examination, there appeared to be more than four times as many stalks standing on equal surfaces of the limed part, than the other; and those on the limed part have a much more vigorous appearance.

The foregoing is merely a statement of the facts, as they appeared at this time. The following questions naturally arise: 1st. Was it the lime or the salt which produced the above results? 2d. Was it either? If so, 3d. How did they operate so as to prevent the frost from destroying the young wheat, all other circumstances being so near alike?

In answer to the first question, it will require farther experiments to decide, which, alone, exerted the influence, so as to produce the effect described. I believe it is an admitted fact with agriculturists, that both, under certain circumstances, exert a powerful influence on vegetation.

In answer to the second query, I have no hesitation in saying, from the facts above stated, that the salt and lime, either singly or together, produced the difference in the two sides of the field.

In answer to the third query, I will make a few remarks. So far as I observed, the wheat came up on every part of the lot at the same time, about twenty days after it was sowed, (the weather was cold and unfavorable.) When the roots of the wheat on the limed part are examined, they appear longer and more numerous there than on the other part. I have but little doubt, therefore, that the lime and salt exerted an influence on the growth of the roots of the wheat, during the winter, increasing their number and their strength, so as to enable them to resist the severity of the winter, and hold fast to the soil; whilst on the other part, the roots remained comparatively as they were when winter set in, being late sowed, the roots gained but little hold, and not increasing in number nor size, were readily pulled out by the frost. I think it probable, that the same difference will not be observed in early sowing; full time will be given for the roots in both cases to attach the stalk firmly to the ground, so as equally to resist the influence of the frost; therefore, but little difference will be observed.

Whether this view of the subject be correct or not, I leave to farther experiment and to those more conversant in the matter to decide. It has occurred to me, that much of the benefit which is said to be derived from rolling seed wheat in lime,* to destroy the Hessian fly, has arisen from the fact, that the lime enables the young wheat to resist the winter; a much greater number of stalks remaining (as in the field just described) on the limed part, than on that which is not limed. The chances are much increased, (if the flies are not numerous,) that many stalks in the former will escape their ravages, when most of the latter, because of their being less numerous, will be attacked and destroyed.

I have thrown these remarks together hastily, with the view of attracting the attention of others better qualified to examine the subject. If farther experience and observation should go to establish the facts which I have submitted, there is a probability, of that much loss sustained by late sowing, (to avoid the ravages of that destructive insect, the Hessian fly,) may be avoided. If you, or any of your numerous correspondents, have made any similar observations, I would be glad if you would make them public through the columns of your useful paper. You will have observed, that the foregoing facts have not been advanced (as is too often the case,) to establish a favorite preconceived theory, the whole being the result of accident, as I had no other object in view than the removal of the chess or cheat from the wheat.

JEFFERSON SHIELDS.

Emmetsburgh, Md. March 23d, 1837.

* From frequent experiments and minute observations, I am entirely satisfied, that rolling seed wheat in lime does not exert the least influence, in preventing the ravages of the fly, unless as here stated; particular attention to the habits of that insect, for upwards of seven years, has convinced me that it never does, (as is generally supposed,) deposite its ova or egg in, or on, the grain of wheat, but invariably on the stalk, through the blade or leaf, and near the first joint. The first deposite is made just after it comes up, the second about the 25th of April, consequently no agent applied to the seed, with the view of destroying the ova or egg, can be of the least service, except as here stated.

EXTRACTS.

AGRICULTURAL EDUCATION.

A series of well written numbers upon this subject has been addressed to the farmers of Canada, through a Montreal paper, by William Evans. As we consider this one of the most important subjects to bring before our readers, we make the following extracts from the second number of the series, and commend them to the particular notice of all who wish to fit their sons for usefulness and respectability in life.

TO THE FARMERS OF CANADA.

Agricultural improvement, by the education of those that are engaged in it as a profession.

"What are the advantages that are likely to result, from the useful, practical, and general education of the agricultural class?

"To this question I reply, that an improved system of agricultural management would inevitably be introduced, by which it would be possible to augment the produce and returns obtained from the cultivated land, and stock in these Provinces, to double what they are at present, and in many instances, much more; and I am firmly persuaded, that no material improvement will ever be effected in the agriculture of the Canadas, until farmers do become usefully and generally educated. I have not arrived at these conclusions, without giving those matters consideration. I know too well that farmers, above all other classes of men, have an antipathy to change, and object to innovation, and that there is no means of removing their prejudices, but by education, which would enable them to examine thoroughly the changes that would be recommended to their notice, and look steadily at all the bearings of questions that would affect their interests. They would then, from conviction of their own minds, adopt with alacrity all measures that would be likely to augment the means of happiness of themselves, and their families. It is then that the natural fertility of this fine country would be taken full advantage of, the fields would be well cultivated, and yield abundant crops: the flocks and herds would be judiciously chosen, well managed and fed; good and ample means of internal communication would be provided. All matters in any way connected with agriculture, would clearly exhibit the industry, the skill, and intelligence of those engaged in husbandry, and raise the yeomanry of these Provinces to that high station they are entitled to occupy in this community. If education can produce these results, and no doubt it would, how highly should it be desired and prized by those engaged in agriculture. It is true, that agriculture may be practised by *imitation*, without any knowledge of its theory; but in this case it will generally remain stationary. The mere routine practitioner cannot advance beyond the limits of his own particular experience, and can never derive instruction from such accidents as are favorable to his object, nor guard against the recurrence of such as are unfavorable. He can have no recourse for unforeseen events, but ordinary expedients; while the educated man of science resorts to general principles, refers events to their true causes, and adopts his measures to meet each case."

"I expect to be able to establish the fact clearly, that a *judicious* education will diminish crime, and increase the means of human happiness; and if I am able to do this, it is a matter of the first importance in every country, that the inhabitants be *usefully* and *generally* educated; and *more particularly* the agricultural class, who, I maintain, will receive more certain benefit from an education that is suitable for them, and incur less risk of injury to their habits and usefulness, from this education, than any other numerous class of this community. There is much more danger that some of the educated inhabitants of cities and towns would become idle and useless members of society, than that properly instructed agriculturists should become so. But in any situation, the education that will not be productive of good to the individual, must be defective. 'The most enlightened are the most reasonable—the most reasonable feel more

than others the real interests and motives they have to be virtuous. Without the study of nature, man can never know the relation he bears, nor the duties he owes to himself and others—deprived of this knowledge, he can have neither firm principles nor true happiness. The most enlightened, are the most interested in being the best men'—however lamentable it may be, that we do not find them the best in every case. But we shall, among the uneducated class, discover a much greater lack of virtuous principle and true enjoyment, in proportion, than among the properly educated.

"Mind was given to man for cultivation, and the means of cultivation is by education and reading. Like the soil of our mother earth, the more *judiciously* it is cultivated, the more abundant good fruits will be produced for the benefit of the individual and of society. There cannot be a more just comparison made, than of an uneducated man, to an ill-cultivated farm; and a *usefully* educated man, to a judiciously cultivated farm. In the first, the natural product, whether good or bad, is allowed to keep possession to a certain extent, both in the mind and in the soil, and the general product of what is useful must necessarily be scanty. In the last, on the contrary, no plants in the field, or ideas in the mind, are suffered to remain or take root, but such as are useful to man, and these are carefully cultivated, and the produce of *good fruits* are most abundant.

"If these results do not always follow, it will be from the intervention of accidental circumstances, and will not prove the general principles to be incorrect. There may be many defects in the mode and extent of education."

"It is a great mistake to compare the agricultural classes in British America generally to what are termed the *peasantry* of other countries, who are mostly persons that have little or no property, more than what they receive for their daily labor, or those who occupy a few acres of land as tenants, paying a high rent for it. On the contrary, the rural population in these Provinces are *proprietors* of ample farms, stock, implements of husbandry, &c. &c. There can be no question of the necessity that exists, that persons circumstanced as the latter class, should receive a suitable education. They cannot exercise their profession to due advantage without being thus qualified; and the loss to this country that is occasioned by the absence of a judicious system of agriculture, and a consequent scanty produce, is enormous.

"In the British Isles, within the last fifty years, the produce obtained from agriculture has been greatly increased, and this is to be attributed solely to the improved cultivation and management of soil and stock introduced by educated men. The state of property in those countries will insure the advance of improvement in agriculture, though it should not be through the suggestion of the occupying rent-paying farmer. It will be the interest of the great landed proprietors to proceed with experiments on land and stock, so as to make them as profitable as possible, in order to maintain the rent of lands, &c. on which their annual income chiefly depends. It is not so in British America, the farmers being the *proprietors* of the soil they occupy, they must rely upon themselves for its judicious cultivation. It is for them to judge whether they are competent to do this without receiving a useful and practical education."

"What may be considered by some to be the most improved system of agricultural management cannot be introduced in British America, unless it may be made profitable. I confess I cannot look upon any system of agricultural management in tillage or stock, as entitled to the term "*improved*," unless it produce *actual profit* to the farmer. Expenditure of capital or labor in any way, that will not give proportionate returns, must be injurious to the community, as well as to the individual who expends it. By *practically* and *usefully* educating the farmer, he will be able to determine for *himself* the course he ought to adopt, in the conduct of every part of his business. In vain was all that has been written and published for the improvement of husbandry, if farmers cannot and will not read. The manners and customs of other countries are unknown to him. The wonders and beauties which abound in the world, are of little consequence to the man who cannot make himself acquainted with descriptions that are given of them, and that would place them as if viewed in a glass before him. The usefulness and enjoyment of those so circumstanced, must, indeed be confined within narrow bounds. It is those who have the good fortune to be educated, that will know that education is an essential element of the usefulness of man, to those around him, to the world, and to his own enjoyment."

THE CUT-WORM.

Joseph E. Muse, of Cambridge, Md. has published in the Farmers' Register, some strictures upon two communications which have appeared in the Cultivator, in regard to the character of the cut-worm. He endeavors to show, that its character has been mistaken, by both of our correspondents, as well as by the late Judge Peters, and concludes his communication with the following statement, which we insert for the entomological information which it contains.

"To come at the fact, I carried into the corn-field a large transparent bottle, which I half-filled with earth—upon this earth I deposited a dozen of the worms, and gave them corn plants to feed upon. In a few weeks they disappeared. I searched the earth and found them 'chrysalids' enveloped in balls of earth. A considerable time after I again examined them, and found several of them matured into the imago, or *parent* bug, and extricated from their *envelops;* others in the state of a soft 'pupa,' with limbs more or less distinctly formed, in various stages of progression, and exhibiting unequivocal proofs of their origin, and of the impossibility of mistake or deception. These destructive animals belong to the order 'coleoptera' of Linn. having crusteceous elytra, or wing cases, which shut together and form a longitudinal suture down the back. They are about one-quarter of an inch long, generally, and of a shining jet black colour, very quick and active in their movements; in fact, the same identical bugs that are seen in vast numbers under wheat stacks, and in wheat yards. The brief history of this insect is, that its larva having fed upon the young corn, or other delicate plants, descends into the earth about the depth of four inches, where it assumes its state of '*chrysalis*,' in which it continues till about the first of July, and no doubt a shorter or longer period, as the weather may be more or less favorable—when it becomes transformed into the imago or parent, which in autumn deposites its eggs in the field, to undergo a similar series of transitions, which is effected by the heat of the ensuing season.

"The obvious *preventive* is *fall* or *winter ploughing* at such a depth as will turn up, and expose to the frost, the eggs, whereby they must perish."

The above *preventive* was not offered as original, it had before been practised, perhaps by many, and its effects had fallen short of their hopes; first, by the imperfect method of too *shallow* a *furrow*, and too *wide* a *slice*, whereby the eggs were not sufficiently exposed. Secondly, because the eggs of all insects are, unfortunately, so tenacious of the principle of *vitality*, as to resist a degree of cold incredible to those who have not witnessed the fact: yet having long practised the proposed preventive, I can say in the fullest truth, that when the work was well executed, and a very *mild winter* did not ensue, I have received a full equivalent for the labor.

Finally, I must apologize for subjoining my name contrary to the general custom, "I perceive," of your correspondents. May I presume to ask what motive can occasion this custom? Certainly an *anonymous* statements of *facts*, or even of *opinions*, carries with it less confidence than one which offers the *responsibility* of a *name;* and with diminished confidence, the purpose is diminished in effect. The name freely tendered, "of a witness to facts," is a considerable assurance of, at least, a *belief* of their truth; he may be deceived, but it is justly said '*humanum est errare;*' and ordinary liberality will not impute to him a wanton misrepresentation of his impression of facts. Modesty is commendable; but in this custom, there is rather something of the "*mauvaise honte.*" As well may a public speaker, or a witness in court, conceal his identity behind a curtain. The *cause*, and the *effect* would seem to be the same.

[*From Chaptal's Chemistry applied to Agriculture.*]

IMPROVEMENT OF THE SOIL.

ARGILLACEOUS, HOW IMPROVED.

These defects, more marked in argillaceous soils than in others, require to be amended; every thing which will tend to soften the earth, to render it more light and porous, and to facilitate the passage of water through it, is perfectly adapted to this kind of soil: thus the mixture of earths, and of calcareous sands, broken shells, chalks, and lean marl; deep and frequent ploughing; the turning in of green crops; the use of hot manures, such as the dung, fresh from the barn-yard, of sheep and horses, that of pigeons and fowls, *poudrette*, and the salts, are so many means which may be made to concur in the improvement of argillaceous soils.

I have had opportunities of seeing many soils possessing the same faults as the argillaceous, but not owing to the excess of that earth; for by mixing a portion of the soils in water, I satisfied myself that there was not contained in them any coarse sand; so that the whole was formed by a union of particles so minutely divided as to present no consistency in the mass; but forming a paste with water, and cracking when that liquid was evaporated. The only difference between the argillaceous soils and these is, that the latter when dried do not possess the hardness of the former, but on the contrary fall, under the pressure of the hand, into a nearly impalpable powder. The state of these soils is owing to their having been exhausted by long cultivation; some of the kind which I have owned, I have been able to restore to fertility by applying a portion of sandy marl containing 42-100 of calcareous sand.

CALCAREOUS, HOW IMPROVED.

Calcareous soils possess properties entirely opposite to those of the argillaceous soils; the rains filtrate easily through them, and they throw off moisture readily by evaporation; the air can penetrate them to deposit amongst their particles the moisture with which it is charged: and this, especially in hot climates, conduces greatly to their fertility. The tillage of these soils is always easy; and as they are light and porous, provided they have sufficient depth, roots spread in them easily. Though, from their character, these soils do not require so much amendment as those

that are argillaceous, they may still be improved; especially by giving to them the power of retaining water for a longer time, that they may thus be better able to supply the wants of plants: for this purpose, it is sufficient to add to them some fat marl, or for want of that, calcined clay. These soils, being naturally warm, require not the fresh dung of neat cattle; the unctuous manures are best adapted to them.

Sand incorporated with finely divided calcareous earth, forms an excellent means of amendment, especially if it be combined with clay or fat marl. I have likewise seen the rich mud drawn from rivers, used with great success in improving calcareous soils.

There is a great resemblance in many respects between sandy and calcareous soils: both are formed, generally, by the alluvion of rivers; both of them are nearly barren when they contain no other principles; and both of them form the base of very good soils, if they are suitably amended.

ALLUVIAL SOILS, HOW PRESERVED AND ENRICHED.

When these soils are formed by the inundations of rivers, or by streams that have taken new channels, they are for some time destitute of fertility; but the successive swellings of the rivers deposite a rich mud, which becomes at length incorporated with the first layer; and when the whole is well united, an excellent soil is formed. This mud is very fertilizing, from its containing the remains of all those animal and vegetable substances, which muddy waters carry with them in their overflowings. When these soils are left to themselves, we see plants springing upon them spontaneously, from the seeds deposited by the waters which conveyed them there.

Soils of this kind rarely require manuring: successive inundations constantly renew their fertility: their level is raised by the accumulation of deposites, till at length they are not subject to being overflowed, excepting when the rivers rise unusually high; and in those cases the large pebples, which never float upon the surface of water, cannot be deposited upon them. These lands, so valuable for agriculture, do not offer much resistance to the rapid current of great inundations, which often carry them off; nor to the masses of ice, which at the breaking up of the frosts gully and furrow them. I believe I ought here to devote a few lines to pointing out some methods for preserving these valuable lands from such accidents; it is of more consequence to preserve property than to improve it.

In order to prevent the evils of which I have just spoken, it is customary to surround lands of this kind with plantations of trees; but trees of a large size cannot take root firmly in a sandy and easily disturbed soil. The winds are generally very violent in those valleys through which large rivers flow; and these, by the violent motion which they give to the branches, twisting them in every direction, loosen the roots; and the earth being continually disturbed, the water penetrates in, and softens it so that when an overflow of the river happens, the breaches thus made in the soil lessen its powers of resistance to the flood.

If we observe carefully the action of currents upon the great trees surrounding lands situated upon the banks of a stream or river, or upon an island lying in the course of one, we shall be convinced, that, so far from preserving, they facilitate the destruction of property; for as the trunks oppose an invincible resistance to the force of the current, it is divided, and, encircling them, it meets again, having formed a complete trench in the soil. Thus though large trees may be useful for turning aside masses of ice, and preventing the land from being much injured by them; yet instead of preserving it from the ravages of a rapid current, they become powerful auxiliaries to its destructive action.

Flexible shrubs are undoubtedly preferable to large trees; their roots bind the soil; their branches lie upon the surface of the earth, and preserve it from injury during floods; but these shrubs do not present any resistance to the ice when the rivers are breaking up; they cannot turn aside the masses of it, and force them to remain in the bed of the river, that they may not furrow the meadow or field It is necessary then to unite the resistance offered by trees with that of flexible shrubs: in order to do this, it is necessary to plant willows or poplars on the extremity of the banks, at the distance of seven or eight feet apart; the heads of these may be cut off some feet above the height to which the highest floods ever reach: the water willows or osiers may be planted all along upon the shelf or slope of the land, and from twenty-five to thirty feet inward. In a few years there will be nothing to fear from floods or ice upon land defended in this way; and a considerable revenue will arise from the pruning of the trees, and the clippings of the osiers.

After having placed the land out of danger from inundations, the neighborhood of a river opens sources of profit that are very simple, and may be taken advantage of at a slight expense. I have heretofore remarked, that the mud of rivers is of great use as an amender of soils, and that when employed upon alluvial lands it supersedes the necessity of applying to them other manures; it is then advisable, in overflowings, to retain that mud, and that only, which possesses the greatest power of fertilization.

When the overflow of a stream commences by inundating that portion of land which lies highest up the current, it spreads with great rapidity over the whole extent of it, furrowing its surface, and carrying beyond it all the most finely divided mud with which it is loaded: often up-rooting crops and washing away the manures which have been deposited during former overflowings; and thus impoverishing instead of enriching the soil. But when the rise of water begins down the current, and the whole tract of land is slowly submerged, till, even to the head, it is under water, the soil receives and retains all the richest and most finely divided mud, as well as the remains of animal and vegetable substances which the stream has in its downward course washed off from other tracts of country, without any injury being sustained either by the harvest or the land. In order to give the desired direction to the current, it is only necessary to raise the head of the land, or that part which lies up the stream, and to plant the bank with osiers.

By these means, I have improved and tripled the value of certain islands belonging to me in the river Loire. These islands, which formerly produced but little, and were constantly receiving injury from the swellings of the river, are now the most productive portions of my estate, for the cultivation of grains and beet roots.

SILICEOUS, HOW IMPROVED.

When sandy or siliceous soils are situated at a distance from a river, or are by the height of the banks placed beyond the reach of an overflow, it is necessary to ameliorate them by art; and this must be done by the addition of fat marl, clay, dung, &c. The amendment must be varied according to the nature and fineness of the sand; calcareous sands retain moisture better than siliceous sands.

I have seen some soils formed of beds of large pebbles, which without the appearance of mould upon the surface, produced very good crops; the layer of pebbles, which was second from the surface, contained earth enough to enable the plants to take root and flourish.

Soils of this kind furnish excellent pasture for sheep, as may be observed on the ancient and immense alluvions of the Durance and the Rhone. The herbage upon these is excellent, and suffers less from drought than elsewhere; being protected from the ill effects of the scorching rays of the sun by the pebbles lying above its roots.

Rozier made the experiment of covering a part of the soil of his vineyards with pebbles, and found it attended with good effects, especially as it regarded the quantity of wine obtained. One of my friends owned in Paris, near the barrier d'Enfer, an enclosure, of which the soil was so dry and poor, that notwithstanding all the pains he bestowed upon it, he could never make any fruit-trees thrive there: in order to amend the soil, he covered it with a layer of good earth, which he mixed with the dry sand of the spot; this give it some degree of fertility, but the heat dried his plantations so much, that he could only preserve them by frequent and very expensive waterings: he at length concluded to cover the surface of the ground with a layer of pebbles, and from that time the trees prospered.

BURNING OF SOILS, WHEN BENEFICIAL, AND WHEN HURTFUL.

In some countries, recourse is had to fire as an amender of the soil; this process, called burning, is strongly recommended by some practical farmers, and highly disapproved of by others: both sides rely on the test of their own experience; and both are so sincere in their opinions, that it would be useless to contest the truth of their observations. I can only agree with each of these contradictory opinions, and at the same time make known the cases to which burning is applicable, and those to which it is unsuited, in order to enlighten the agriculturist as to the effect of the operation: he can afterwards make for himself just and rational applications of the theory.

In the process of burning, a layer of from two to four inches in thickness, is removed from the soil in clods: little heaps of combustibles are formed with the broom, thistles, fern, and shrubs that grow upon the spot: these are covered with the clods, and at the end of some days are set on fire; the combustion of them lasts a longer or shorter time. When the whole has become cool, the heaps of ashes are spread over the surface, and thus mixed with the soil.

By this operation the constituent parts of a soil are divided, and rendered less compact; the disposition which a clayey ground has to absorb a great quantity of water, is corrected, and this soil rendered less cohesive and pasty; the inactive vegetable matter contained in it, is converted into manure: the oxidation of its iron is carried to its maximum; and insects and the seeds of injurious plants are destroyed. Hence we perceive that burning belongs to moist, compact soils; it is attended with good effects when the bed of earth is too cohesive, or when it presents veins of blackish oxide of iron: it is suited to nearly all cold and compact lands.

Burning, especially if it be judiciously conducted, completely changes the nature of a soil, and corrects the greater part of its imperfections. I have by this means given to agriculture 120 acres of land reputed sterile, formed almost entirely of a ferruginous and very compact clay: the burning extended to the depth of four inches. For twelve years this land, though not very productive, has afforded me good returns. Its former sterility had procured it the name of the *Jews' heath*.

Burning is hurtful to calcareous and light lands; to soils of which the composition is perfect; and to fertile lands, rich in decomposed animal and vegetable substances.

It is useless to soils purely siliceous, for these can receive no modification from fire.

In some countries it is customary to burn the stubble upon the field; this method, which is only an imperfect mode of burning, is productive of good in two ways; in the first place, it purifies the soil from insects, and from the seeds of noxious plants; and in the second place, it forms a thin layer of carbon, which by its extreme division is capable of being easily absorbed by plants. I believe that even the heat occasioned by the combustion of the stubble and herbs covering the soil, may produce salutary changes in the combinations of the constituent parts.

The results which I obtained from mixing calcined clay with the sand constituting the soil upon a portion of the plains of Sablons, near Paris, has led me to think, that whenever lands of this nature are cultivated, it may be useful to amend them by the same process; in order to do this, clay may be formed into balls by moistening it with water enough to reduce it to a paste; these balls, after having been calcined in a lime kiln, or the oven of a pottery, may be pounded, and the fragments mixed with the soil. Calcareous, siliceous, and sandy soils may be in this way much improved.

OFFICES OF WATER.

Of all the agents which may be employed as amendments, there is none of which the action is more powerful than that of water: not only does it contribute to the nourishment of the plant by its decomposition, which deposites in the vessels its elementary principles; but it acts still farther by promoting the fermentation of manures; and by conveying into the vegetable organs the juices and salts. Independently of these properties, water dilutes the sap, which has become thickened in the body of the plant, and facilitates its circulation; and likewise furnishes abundantly the means of transpiration. The soil is also softened by water, and thus rendered more permeable by the roots, and by atmospheric air which supplies them with the moisture it contains.

All the excess of water absorbed by plants, is thrown off by transpiration; and this transpiration is always more or less abundant in proportion to the quantity imbibed.

IRRIGATION.

The custom of inundating meadows during winter, preserves them from the effects of hard frosts. Davy ascertained the temperature beneath the bed of ice covering a meadow, and above it: beneath the ice his thermometer stood at 43°; above the ice at 29°. Every one must have observed, that when the surface of a meadow is only partially covered by water during the winter, the herbage upon that part which is left dry, is withered and nearly dead, whilst the rest retains its green hue, and continues to grow.

The character of water used for irrigation, is a thing of some consequence; that of a living stream is the best, especially if it have, by a long course, become impregnated with a good quantity of atmospheric air.

Though water is the most active agent in vegetation, it is nevertheless necessary to apply it with reserve and caution: the worst effects are produced by irrigating land so often as to keep the soil constantly in the state of a liquid paste. The first evil arising from such a course is that of increasing the size of the plants to the injury of all their other qualities; for in such a case the fibres of plants become loose; the texture soft and watery; the flowers are inodorous, and the fruits without firmness, taste, or perfume. The second is, that all useful plants which do not require much water, give place to rushes and flags which change and ruin the soil: in this case the same evil is produced which we seek to destroy in wet lands by the use of soot, gravel, ashes, and other absorbing and saline bodies.

Frequent irrigations are not injurious to poor, light, sandy, or calcareous soils, which have much depth; but they are injurious to rich, compact, argillaceous soils, for in such the noxious plants of which I have just spoken, readily establish themselves.

To ascertain the most favorable times for irrigation, it is necessary to consult the state of the soil, and of the plants: when the earth is deprived of moisture to such a depth that the plants languish, and begin to lose their leaves, the favorable moment has arrived for watering them. If allowed to remain in this state too long, they cease to grow, and hasten to terminate their vegetation by the production of fruits, and flowers; but these are always feeble, poor, and incomplete, when produced under such circumstances.

FALLOWING.

The custom of allowing lands to lie fallow after having produced several harvests, has descended from the remotest antiquity, and is still followed in the greatest part of Europe. It has been thought necessary, that land after having been exhausted by two or three successive crops should be allowed to rest, or to remain in fallow during one or two years, in order that it might have time to recover its strength, or productive virtue. The necessity for rest, imposed by nature upon all animals after continued action, undoubtedly gave rise to this practice; and though the supposed analogy between living bodies, and those that are not so, has no rational foundation, yet it has confirmed the custom of fallowing which arose from it.

However, I am far from believing that this was the only cause for the adoption of the method of which I am speaking; I believe that it may be attributed to the want of hands for performing the labor of constant cultivation; or to the impossibility of nourishing a sufficient number of animals to furnish the necessary manures.

The extent to which the cultivation of lands should be carried, ought always to be in proportion to the population to be fed by its products. It is to be presumed, that when the globe had fewer inhabitants, the settlements were made in those spots where the soil was most fertile, and that when these were exhausted, they removed elsewhere; but when property came to be divided and marked out, each cultivator confined his labors to such a portion of land as would supply his wants; so that when it was sufficient for him to cultivate one-quarter, or one-third of his territory, he allowed the rest to remain untilled.

Fallowing has, according to this view of the subject, arisen from necessity. We know with certainty that the crops in gardens surrounding dwellings may be multiplied and continued indefinitely, by means of tilling and manuring; but the necessity for this is not felt, as long as the produce is sufficient for consumption, and when the expense attending the means of procuring an increase beyond that, would be so much clear loss.

In proportion as population has increased, lands have been cleared up, and cultivation extended and improved; so that production has always kept pace with consumption. As the wants of society permit fallowing less at this time than formerly, it has begun to disappear, especially where those wants are most pressing; and more particularly, when there is an assured prospect of an advantageous market for agricultural productions.

Fallowing was necessary as long as grains only, all of which exhaust the soil, were cultivated; during the intervals of tilling the fields, a variety of herbs grew in them, which afforded food for animals, and the roots of which, when buried in the soil by the plough, furnished a great part of the necessary manure. But at this day, when we have succeeded in establishing the cultivation of a great variety of roots and artificial grasses, the system of fallowing can be no longer supported by the shadow of a good reason.

The scarcity of dung occasioned by the limited number of cattle that could be maintained upon a farm, caused the custom of fallowing to be continued; but the ease with which fodder may be cultivated furnishes the means of supporting an increased number of animals; these in their turn supply manure and labor; and the farmer is no longer under the necessity of allowing his lands to lie fallow.

ARTIFICIAL GRASS LANDS THE BASIS OF GOOD HUSBANDRY.

Artificial grass lands ought now to be considered as forming the basis of agriculture; these furnish fodder, the fodder supports cattle, and the cattle furnish manure, labor, and all the means necessary to a thorough system of cultivation.

The suppression of the practice of fallowing is then equally serviceable to the cultivator, who increases his productions without proportionally increasing his expenses, and so society, which derives from the same extent of soil a much greater quantity of food, and additional resources for supplying the work-shops of the manufacturer.

ROTATION OF CROPS.

A great advantage has arisen from the system of a rotation of crops, which has succeeded that of fallowing. By skilfully arranging a succession of crops of grain, artificial fodder, leguminous plants, roots, &c. the earth is enriched, instead of being impoverished; the ground is cleansed from weeds, and more abundant crops are obtained at a less expense. During those years when certain fodders, such as clover, sainfoin, and trefoil, require no other care than that of harvesting them, the farmer can bestow all his attention, manures, and the labor of his cattle, upon such other portions of his farm as may need amelioration; so that, instead of having one-third of his land lying as an unproductive fallow, it may be covered with herbage affording the finest food for cattle. The soil will be growing richer, instead of poorer, and may be prepared for raising grain, without the addition of any manure.

A BAD PRACTICE COMMENTED ON.

What has contributed the most towards confining French agriculture to that state of mediocrity, from which neither the examples nor the writings of many enlightened theoretical farmers have been able to raise it, is the passion for cultivating too large an extent of land, with limited powers as to its arrangement. Where all the land is sown without any portion of it being properly prepared, the ground is exhausted instead of being improved by cultivation. The farmer, who takes land upon lease, has no interest in endeavoring to make it better, because the shortness of the lease does not permit him to enjoy the fruit of his labor; he is forced to reap from the land all it will produce.

Instead of including in his plans of cultivation a space of ground disproportioned to the means which are at his disposal, the intelligent farmer will at first occupy himself only with such a portion of his land as will be sufficient for his cattle, his manures, and his improvements; when this has been brought into a good state of cultivation, and a regular succession of crops established upon it, he can carry his amendments over successive portions, till, in a few years, the whole soil may be brought to yield every thing which it is capable of producing. But it is only by long leases, that a farmer can be enabled to pursue a method so wise and so secure; and

long leases would be in all respects as much for the interest of the proprietor as of the farmer.

As the estate which I own is very extensive, I have not hesitated to set apart from my regular rotation of crops, about two hundred and fifty acres of land of middling quality, which had every year been manured equally with my best lands, but which had yielded but poor returns. This great extent of land is now laid down to grass, and serves as a pasture for my cows, oxen, and sheep; each year I break up one-fifth part of it, and sow it with oats, rye, or barley, and the following year, re-establish it as a grass land. I am convinced that this land would never have repaid me for the expense attendant upon raising from it successive crops of grain, roots, and legumes.

OUTLINE OF THE FIRST PRINCIPLES OF HORTICULTURE.

BY JOHN LINDLEY, F. R. S., &c.

Preface.

It has long been thought by intelligent men that it would tend essentially to the advancement of horticulture, if the physiological principles upon which its operations depend for their success, were reduced to a series of simple laws that could be readily borne in mind by those who might not be willing to occupy themselves with the study, in detail, of the complicated phenomena of vegetable life.

The importance of these laws is so great, that there is not a single practice of the gardener, the farmer, or the forrester, the reason of which, if it relates to the vegetable kingdom, can be understood without a knowledge of them.

It has happened, indeed, that many very interesting facts in horticulture, agriculture, and arboriculture, have been discovered fortuitously; and that improvements in them still continue to be occasionally the result of accident; but it cannot be doubted that these discoveries or improvements would have been long anticipated, had the exact nature of the laws from which they necessarily result, been earlier understood.

There can, moreover, be but little mental interest in watching the success of operations of which the reasons are unknown, compared with that which must be felt when all the phenomena attendant upon practice can be foreseen, their results anticipated, or the causes of failure exactly appreciated.

It must also be manifest, that however skilful any person may become by mere force of habit, and by following certain prescribed rules which experience has, or seems to have, sanctioned; yet that much more success might be expected, if he acted upon certain fixed principles, the truth of which has been well ascertained, instead of following empirical prescriptions, the reason of which he cannot understand.

It is not, however, to be understood from this last observation, that rules of cultivation are to be neglected because they cannot be physiologically explained. On the contrary, the mere fact of a given mode of culture having been followed for a length of time by persons deeply interested in the success of their operations, and of much experience, ought to give it very great authority; for it is well known that there are many important facts, the reason of which is either extremely obscure, or altogether unintelligible. This may be owing either to the defective state of our knowledge of the exact nature of many of the phenomena of life, or to the great difficulty of appreciating every circumstance connected with the fact in question, or to constitutional peculiarities in particular species, which, like animal idiosyncrasy, form exceptions to the ordinary laws of nature and baffle all philosophy.

It is in the writings of vegetable physiologists that is to be found what is known of the relation of botany to the cultivation of plants; but it is always so mixed up with other matter, that an ordinary reader is unable to tell what bears upon horticulture, and what upon other subjects.

I am not aware that there is at present, in any language, a work exclusively designed to separate that part of vegetable physiology, which relates to the science of cultivation, from what appertains to pure botany, or to other subjects; nor can I learn that such an undertaking is in contemplation.

I am, therefore, induced to lay the following little work before the public; first, by a persuasion that it is better that the attempt should be made imperfectly, than not made at all; and, secondly, by the very favorable reception that has been given to a few hasty ideas upon this subject which I ventured to sketch out for a work* published some months ago.

The following propositions are prepared upon the same plan as those of an elementary work upon Botany,† originally drawn up for the use of the Botanical class in the University of London.

A similar object has here also been kept in view. My intention has not been to write a work on the philosophy of horticulture; but simply to point out in the briefest manner consistent with clearness, what the fundamental principles of that philosophy have been ascertained to be.

The application of these principles has been necessarily, in all cases, very concise; but there will be no disadvantage if the work acts as an exercise of the reasoning powers, as well as a guide to practice.

It may, perhaps, be thought that several points have been omitted, which it would have been desirable to introduce, such as the influence upon vegetation of electricity, manures, pruning, training, and the various modes of grafting.

But it is possible that a little consideration may show that these subjects do not strictly come within the scope of the following pages.

In the first place, a distinction must be drawn between the *Art* and the *Science* of horticulture; the former teaches the manner, the latter the reasons of cultivation; and it is to the latter only that these propositions apply. Secondly, the plan of this sketch excludes every thing that is merely speculative, or that is incapable of being reduced within certain fixed principles.

Electricity is a power of which we know almost nothing certain with reference to vegetation; if many things have been written about it, it must be admitted, at least, that very little has been proved.

The same may be said of manures: the theory of their action is explained at paragraphs 19, 262, and 266.

Pruning and training are a part of the *Art* of cultivation, dependent upon a great variety of physiological laws, the brief explanation of which is the object of this work. A few hints upon the subject will, however, be found in chapters III. IV. VI. and VIII.

The various modes of grafting are also a part of the *art* of horticulture; and are deduced from laws explained in the XIVth chapter.

To conclude; the reader should above all things bear in mind that he ought not to form his opinion upon any point from the mere consideration of one or two isolated propositions, but of the whole of the phenomena which it is the object of the following pages to explain. For he will find that the vital actions of plants are so dependent upon each other, and of so complicated a nature, that, while the whole can be only understood by a study of the parts, neither can any of the parts be exactly understood, without a knowledge of the whole.

I. GENERAL NATURE OF PLANTS.

1. Horticulture is the application of the arts of cultivation, multiplication, and domestication to the vegetable kingdom. Agriculture and Arboriculture are branches of Horticulture.

2. The vegetable kingdom is composed of living beings, destitute of sensation, with no power of moving spontaneously from place to place, and called plants.

3. Plants are organized bodies, consisting of masses of tissue that is permeable by fluids or gaseous matter.

4. Vegetable tissue consists either of minute bladders, or tubes adhering by their contiguous surfaces, and leaving intermediate passages where they do not touch.

5. Tissue is called *cellular* when it is composed of minute bladders, which either approach the figure of a sphere, or are obviously some modification of it, supposed to be caused by extension or lateral compression.

6. When newly formed it is in a very lax state, and possesses great powers of absorption; probably in consequence of the excessive permeability of its membrane and the imperfect cohesion of its cells.

7. Cellular tissue, otherwise called parenchyma, constitutes the soft and brittle parts of plants; such as pith, pulp, the spaces between the veins of leaves, the principal part of the petals; and the like.

8. Succulent plants are such as have an excessive development of cellular tissue.

9. It may be considered the most essential kind of tissue, because, while no plants exist without it, many are composed of nothing else.

10. Tissue is called *woody fibre* when it is composed of slender tubes, which are conical and closed at each end, and placed side by side.

11. Woody fibre is what causes stiffness and tenacity in certain parts of plants; hence it is found in the veins of leaves, and in bark, and it constitutes the principal part of the wood.

12. *Vascular tissue* is that in which either an elastic tough thread is generated spirally within a tube that is closed and conical at each end; or rows of cylindrical cellules, placed end to end, finally become continuous tubes by the loss of their ends.

13. The most remarkable form of vascular tissue is the *spiral vessel*, which has the power of unrolling with elasticity when stretched

14. Other kinds of vascular tissue are incapable of unrolling, but break when stretched.

15. Spiral vessels are not found in the wood or bark, and rarely in the roots of plants.

16. Vascular tissue of other kinds is confined to the root, stem, veins of leaves, petals, and other parts composed of leaves. It is not found in bark.

17. The common office of the tissue is to convey fluid or air, and to act as the receptacle of secretions.

18. Cellular tissue conveys fluids in all directions, absorbs with great rapidity, is the first cause of the adhesions that take place between contiguous parts, and is the principal receptable of secreted matter.

19. Adhesion will take place at all times during the growing season, when the cellular tissue of two different parts, or of two different plants,

* Guide to the Orchard and Kitchen Garden, by George Lindley, C. M. H. S. 8vo. 1831.

† Outline of the First Principles of Botany. 18mo. 2d Edition. London, 1831.

is kept for some time in contact; but as none but tissues of nearly the same nature will adhere, grafting and budding, which are caused by the adhesion of contiguous parts, can only take place either between different varieties of the same species, or between nearly related species; and even then only when the correspondent parts of the scion or bud, and the stock, are placed in contact.

20. Woody fibre conveys fluid in the direction of its length, gives stiffness and flexibility to the general system, and acts as a protection to spiral and other delicate vessels.

21. Spiral vessels convey oxygenated air.

22. Other vessels probably conduct fluid when young, and air when old.

23. As the bodies of which all tissue is composed are perfectly simple, unbranched, and regular in figure, having, when elongated, their two extremities exactly alike, they are more or less capable of conveying gaseous matter or fluids in any direction; and, consequently, a current may be reversed in them without inconvenience: hence, inverted cuttings or stems will grow.

24. All parts of plants are composed of tissue, whether they be soft, as pulp; or hard, as the bony lining of a peach.

25. With regard to horticultural operations, the parts of plants should be considered under the heads of *Root* (II.); *Stem* (III.); *Leaf-buds* (IV.); *Leaves* (V.); *Flowers* (VI.); *Sexes* (VII.); *Fruit* (VIII.); and *Seed* (IX.).

II. ROOT.

26. The root is the part that strikes into the earth when a seed begins to germinate and which afterwards continues to lengthen beneath the soil.

27. It is also the part which is sometimes emitted by the stem, for the purpose of absorbing nutriment from the atmosphere; as the ivy, air-plants, vines, &c.

28. It is distinguished from the stem by the absence of leaves in any state, of regular leaf-buds (IV.); of evaporating pores or stomata (131.); and of pith in exogenous plants,

29. Therefore, such underground bodies as those called tuber (61) in the potato; bulb (96.) in the onion; and solid bulb or cormus (61.) in the crocus, are not roots.

30. The office of the root is to absorb food in a fluid or gaseous state; and also to fix the plant in the soil, or to some firm support

31. The latter office is essential to the certain and regular performance of the former.

32. It is not by the whole of their surface that roots absorb food; but only by their young and newly formed extremities, called *spongioles*.

33. Hence the preservation of the spongiole in an uninjured state is essential to the removal of a plant from one place to another.

34. A spongiole consists of very young vascular tissue (12.), surrounded by very young cellular substance. (5)

35. It is therefore one of the most delicate parts of plants, and the most easily injured.

36. Hence whatever is known to produce any specific deleterious action upon leaves or stems, such as certain gases (298.) and mineral or vegetable poisons, will produce a much more fatal effect upon the spongioles.

37. These organs have no power of selecting their food, but will absorb whatever the earth or air may contain, which is sufficiently fluid to pass through the sides of their tissue.

38. So that if the spongioles are developed in a medium which is of an unsuitable nature, as they will still continue to absorb, they cannot fail to introduce matter which will prove either injurious or fatal to life, according to its intensity.

39. This may often explain why trees suddenly become unhealthy, without any external apparent cause.

40. Plants have the power of replacing spongioles by the formation of new ones; so that an individual is not destroyed by their loss.

41. But this power depends upon the co-operation of the atmosphere, and upon the special vital powers of the species.

42. If the atmosphere is so humid as to hinder evaporation, spongioles will have time to form anew, but if the atmosphere is dry, the loss by evaporation will be so much greater than can be supplied by the injured roots, that the whole system will be emptied of fluid before the new spongioles can form.

43. This is the key to transplantation. (XV.)

44. As roots are destitute of leaf-buds (IV.), and as leaf-buds are essential to the multiplication of an individual (108.), it should follow that roots can never be employed for the purpose of multiplication.

45. Nevertheless, roots when woody have, occasionally, the power of generating adventitious leaf-buds (IV.); and when this is the case, they may be employed for the purpose of multiplication; as those of cydonia japonica, &c.

46. The cause of this power existing in some species, and not in others, is unknown.

47. It is therefore a power that can never be calculated upon; and whose existence is only to be discovered by accident.

48. Although roots are generated under-ground, and sometimes at considerable depths, yet access to a certain quantity of atmospheric air appears indispensable to the healthy execution of their functions. This is constantly exemplified in plants growing in the earth at the back of an ill-ventilated forcing house, where the roots have no means of finding their way into the earth on the outside of the house.

49. It is supposed by some that the introduction of oxygen in their system is as indispensable to them as to animals

50. It seems more probable that the oxygen of the atmosphere, seizing upon a certain quantity of carbon, forms carbonic acid, which they absorb, and feed upon.

51. It is at least certain that the exclusion of air from the roots will always induce an unhealthy condition, or even death itself. This may be one of the reasons why stiff tenacious soils are so seldom suited to the purposes of the cultivator, until their adhesiveness has been destroyed by the addition of other matter.

52. Spongioles secrete excrementitious matter, which is unsuitable to the same species afterwards as food; for poisonous substances are as fatal to the species that secrete them as to any other species.

53. But to other species the excrementitious matter is either not unsuitable, or not deleterious.

54. Hence, soil may be rendered impure (or, as we inaccurately say, worn out,) for one species, which will not be impure for others.

55. This is the true key of the theory of rotation of crops.

56. This also may serve to explain in part why light soil is indispensable to so many plants, and heavy or tenacious soil suitable to so few: for in the former case the spongioles will meet with little resistance to their elongation, and will consequently be continually quitting the place where their excrementitious matter is deposited; while in the latter case, the reverse will occur.

III. STEM.

57. The stem is that part of a plant which is developed above-ground, and which took an upward direction at the period of germination.

58. It consists of a woody axis, covered by bark having stomata (131.) on its surface, bearing leaves with leaf-buds, in their axillæ, and producing flowers and fruit.

59. The points where leaves are borne are called *nodi;* the spaces between the leaves are *internodia*.

60. The more erect a stem grows, the more vigorous it is; and the more it deviates from this direction to a horizontal or pendulous position, the less is it vigorous.—*(To to continued)*

☞ The agriculturists in the western part of this state are making laudable exertions to stock their farms with an improved breed of cattle. This they are enabled to do now, without sending to England, some of the enterprising farmers in this vicinity having, some years ago, imported extensively from the best herds in Europe.

Within a few days, some of these fine cattle, purchased by G. V. SACKETT, Esq. of Seneca-Falls, and the Hon. SAMUEL CLARK, Esq. of Waterloo, were sent west by the canal. Their beauty, in passing through the streets, excited general admiration.

The stock consisted of a full blood "improved Durham short-horned" bull, purchased of MATTHEW BULLOCK, Esq. of Bethlehem. He was of a light roan, five years old, of beautiful form and symmetry, combining all the good qualities calculated to perpetuate the breed of this noble variety of cattle. He was short in the leg—deep and broad in the chest—straight in the back—hips low—broad on the loin—his head and neck were the finest we ever saw on a bull—was perfectly quiet and docile—in fine condition—and weighed on the scale 2000 lbs.

The remainder consisted of a heifer, not quite three years old, with a beautiful calf by her side, and a yearling heifer, and a pair of Bakewell sheep, purchased of C. N. BEMENT. The heifer, though low in flesh, showed a good frame, and all the good points for a deep milker, which was evident from the appearance of the splendid calf running by her side. The yearling was in better condition, and commanded the admiration of all who saw her. Two were of a light roan, the other dark red and white.—*Evening Journal.*

Young Men's Department.

HINTS TO THE YOUNG OF BOTH SEXES.

CONDITIONS REQUIRED FOR EFFICIENT RESPIRATION.

No fact in medicine is better established than that which proves the hereditary transmission from parents to children of a constitutional liability to pulmonary disease, and especially to consumption; yet no condition is less attended to in forming matrimonial engagements. The children of scrofulous and consumptive parents are generally precocious, and their minds being early matured, they engage early in the business of life, and often enter upon the married state before their bodily frame has had time to consolidate. For a few years every thing seems to go on prosperously, and a numerous family gathers around them. All at once, however, while still very young, their physical powers begin to give away, and they drop prematurely into the grave, exhausted by consumption, and leaving child-

ren behind them, destined in all probability either to be cut off as they approach maturity, or to run through the same delusive but fatal career as that of the parents from whom they derived their existence.

Many examples of this kind might be pointed out among the higher classes of society, who are not restrained from following their predominant inclinations, by any necessity of seeking subsistence in professional pursuits. And many instances might be referred to, in which no regard was shown to the manifest existence of the same disposition in the family of either parent, and in which ,consequently, the marriage state was embittered either by barrenness, which is then the most favorable result, or by the prevalence of disease and delicacy in the progeny. It may not be easy to enforce upon the young and inexperienced the requisite degree of attention to these circumstances; but surely education, especially when backed by example, might do much, if the young were properly instructed, at an early period, in the leading facts and principles of the human constitution. Where there are hereditary precocity and delicacy of frame, marriage, instead of being hastened, ought invariably to be delayed at least till the fullest maturity and consolidation of the system: otherwise the consequences will be equally unhappy for the individual and for his future progeny. During growth, and for a considerable time after growth has ceased, the constitution is still imperfect, even in healthy subjects, and wants the enduring strength which it afterward acquires in mature age, and the possession of which marks the period which nature has fixed for the exercise of the functions of reproduction. Many young people of both sexes fall sacrifices to early marriages, who might have withstood the ordinary risks of life, and lived together in happiness, if they had delayed their union for a few years, and allowed time for the consolidation of their constitutions.

I have urged this point strongly, because hereditary predisposition is, avowedly and beyond all doubt, the most frequent source of the more serious forms of pulmonary disease, and it would be worse than folly to allow past and painful experience to go for nothing. Medical men have much in their power in preventing such violations of the laws of the Creator, at least where they are regarded, as they always ought to be, as the friends as well as the professional advisers of the family.

The free and easy expansion of the chest is obviously indispensable to the full play and dilatation of the lungs: whatever impedes it, either in dress or in position, is prejudicial to health; and, on the other hand, whatever favors the free expansion of the chest equally promotes the healthy fulfilment of the respiratory functions Stays, corsets, and tight waistbands operate most injuriously, by compressing the thoracic cavity and impeding the due dilatation of the lungs; and, in many instances, they give rise to consumption. I have seen one case, in which the liver was actually indented by the excessive pressure, and long continued bad health and ultimately death were the results. In allusion to this subject, Mr. Thackrah mentions, that men can exhale, at one effort, from six to ten pints of air, whereas in women the average is only from two or four pints. In ten females, free from disease, whom he examined, about the age of 18½, the quantity of air thrown out averaged 3½ pints; while, in young men of the same age, he found it amount to six pints. Some allowance is to be made for natural differences in the two sexes, but enough remains to show a great diminution of capacity, which can be ascribed to no other cause than the use of stays.

The admirable harmony established by the Creator between the various constituent parts of the animal frame, renders it impossible to pay regard to or infringe the conditions required for the health of any one, without all the rest participating in the benefit or injury. Thus, while cheerful exercise in the open air and in the society of equals is directly and eminently conducive to the well-being of the muscular system, the advantage does not stop there; the beneficent Creator having kindly so ordered it, that the same exercise shall be scarcely less advantageous to the proper performance of the important function of respiration. Active exercise calls the lungs into play, favors their expansion, promotes the circulation of the blood through their substance. and leads to their complete and healthy development. The same end is greatly facilitated by that free and vigorous exercise of the voice which so uniformly accompanies and enlivens the sports of the young, and which doubles the benefits derived from them considered as exercise. The excitement of the social and moral feelings among children engaged in play is another powerful tonic, the influence of which on the general health ought not to be overlooked; for the nervous influence is as indispensable to the right performance of respiration, as it is to the action of the muscles or to the digestion of food.—*Combe's Physiology.*

The following is an extract of a letter from a young gentleman about bursting his minority, and to think and act for himself, who has been brought up in mercantile business in the city of New-York, to his father. Its language is so ingenuous, and its sentiments so correct, that we have asked and obtained leave to publish it:

"I wrote you that I would like to enter the agricultural profession. Now I will merely say that it was not the thought of a moment, but I have had it long on my mind—and my ambition would be satisfied, even in the humble, independent capacity of a tiller of the ground, and had I not thought that I might be of service to you I would not have broached the subject that had so long been on my mind. For the last three or four months, instead of spending my time in idleness, I have taken up and perused many works on agriculture, and I do not know when I have taken up any thing of so much interest, and I flatter myself that I have got some instruction. Last evening I took up a No. of the Cultivator, and while reading it over, I could not help notice one subject, it was on the importance of education If you have the Cultivator near at hand, and will take the trouble to look at No. 12, page 192, and in the middle column, you will find a subject that I think very true. While reading it, I could not help thinking that I was one of those precious few, who was willing to abandon the *pernicious* luxuries and pleasures, the *exciting*, *harassing*, and *perplexing* cares of city and commercial life, for the simple fare and humble occupations of the country. During my sojourn in the city, I have seen and noticed persons in different occupations, and none were so happy and healthy as the farmer—his occupation is not so perplexing—his mind is more at ease—consequently he is a happier, healthier, and better man—and if there is any one who enjoys life, he is the man. I hope to hear from you soon on this subject, as I shall remain in suspense until I do—and my wish is, that you will conclude to let me share with you in the delightful pursuit of agriculture."

RECEIPTS, from April 24 to May 21, inclusive.—Nos. under 10 not noticed.

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Beans white, bush.....	1 25.. 1 50	3 00.. 4 00	1 62..	1 75
Beef, best. cwt.....	7 00.. 9 00	7 50.. 7 77	8 00..8 50	9 50
Pork, per cwt.....	9 00..11 00	10 00..12 00	8 50	8 50..8 77
Butter, fresh, pound, ...	14.. 15	20.. 25	25.. 31	25.. 31
Cheese, pound, ...	8.. 10	10.. 12	10.. 12	13.. 14
Flour, best, bbl.....	9 00..10 00	10 25..10 50	9 00	10 0..12 0
GRAIN—Wheat, bushel, ..	1 42.. 1 60	1 60	2 10	1 40..1 56
Rye, do. ..	75.. 90	1 00.. 1 10	1 15	90
Oats, do. ..	50..	62.. 65	53	42.. 46
Corn, do. ..	1 00	1 02.. 1 10	94	85.. 86
SEEDS—Red Clover, lb...	13	14.. 16	9.. 11	10.. 13
Timothy, bushel,.	2 50.. 2 75	2 87.. 3 12	2 75	3 00..3 50
WOOL—Saxony, fleece, lb.	70.. 75	70.. 75	66.. 73	50.. 60
Merino, lb..... .	55.. 68	60.. 70	58.. 62	45.. 50
1-4 and com. lb...	45.. 50	45.. 50	40.. 44	33.. 36
Sheep, ...	....	1@ 50		
Cows and Calves,.....	18 00..45 00	24 00..40 00	.....	26 0..40 0

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